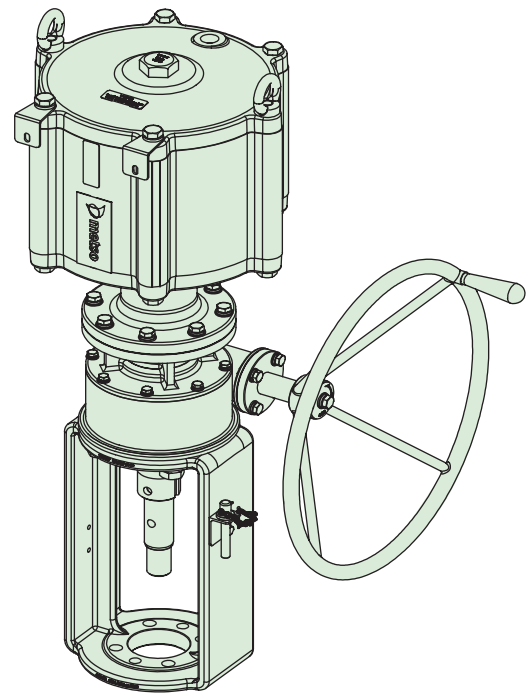


Neles™ pneumatic linear cylinder actuator

Series VB

Neles series VB actuators are developed for linear motion valves. The VBC is double acting and VBR/D is single acting cylinder actuators. VB actuators are designed for use in both modulating control and on-off service. They provide heavy duty and reliable operation and are well suited for many different kind of applications. The high performance internal coating resists wear and corrosion and replaceable inner parts guarantee a long useful life.

VBR actuator will be selected for air fail to close mode, VBD actuator will be selected for air fail to open mode. VBC actuator is double acting actuator, it can achieve the air fail safe mode with a built-in volume chamber or independent volume tank. The built-in volume chamber provides minimum one time stroking when the instrument air fails. When "stay put" failure mode is required, a air lock up valve is the correct choice.



Construction

- Heavy duty actuator designed for linear modulating control and on/off applications.
- Spring return single acting or springless double acting are available.
- Various spring ranges are available.
- Heavy duty piston rod and cylinder are guided by anticorrosive cylinder with self lubricating piston seal which ensures efficient operation and improves the transfer of energy to the valve stem.
- The actuators incorporate three stages of internal and external corrosion resistance coating against severe weather conditions and corrosive environments.
- Optional handwheel for manual operation.
- Optional volume tank or built-in volume chamber.

Simple and cost effective

A specially designed piston and cylinder in the main actuator ensures simple and accurate alignment when assembling the actuator or performing maintenance.

High-and-low temperature construction

The standard unit can be used in ambient temperatures up to +70 °C (+158 °F). High temperature construction is available for temperatures up to +120 °C (+248 °F). The standard unit can be used down to -20 °C (-4 °F). A low temperature design is available for -40...+70 °C (-40... +158 °F), for arctic service please refer type coding.

High cycle option

For applications where very fast and high-frequency continuous operation is required.

SIL compatibility

Safety integrity level certificate is available.

ATEX compatibility

Actuator construction is ATEX approved.

Oversized cylinder options

The oversized cylinders are used whenever the supply pressure is limited, thus the actuator can achieve the required thrusts with a lower supply pressure level.

Accessories and control devices

A variety of accessories are available including positioners and limit switches, solenoid valves, lock-up valves, relays and boosters.

VB Cylinder actuators design details

VB specifications

Size	Piston dia.	Stem dia.	Effective area		Volume		Maximum stroke	
	(mm)	(mm)	cm ²	inch ²	dm ³	inch ³	mm	inch
#32	315	40	767	119	9.2	561.5	120	4.72
#40	400	55	1237	192	22.3	1358.8	180	7.09
#50	500	55	1944	301	35	2135.2	180	7.09
#60	600	65	2827	438	79	4830,4	280	11,02

Note

1. Maximum stroke: Please consult factory for longer stroke requirements
2. The volume is based on above maximum stroke.

VBC thrust capabilities

Size	VBC Thrust capabilities				Max, allowable pressure	
	Pressure		Thrust			
	bar	psi	N	lbf	bar	psi
#32	4	58	29136	6550	10	145
	6	86	43704	9825		
	8.5	121	61915	13919		
#40	4	58	47006	10567		
	6	86	70509	15851		
	8.5	121	99888	22456		
#50	4	58	73867	16606		
	6	86	110800	24909		
	8.5	121	156967	35288		
#60	4	58	110779	24904		
	6	86	166169	37356		
	8,5	121	235406	52921		

VBD/R Spring ranges and max. travel (Stroke)

Size	Spring range		Supply air set pressure		Max. travel (Stroke)	
	bar	psi	bar	psi	mm	inch
VB_32	1.3-1.8	19-25	3	44	120	4.7
	1.8-2.4	26-35	4	58	120	4.7
	2.3-2.9	33-41	5.5	80	120	4.7
VB_40	1.3-1.8	19-25	3	44	180	7.1
	1.8-2.4	26-35	4	58	180	7.1
	2.3-2.9	33-41	5.5	80	180	7.1
VB_50	1.3-1.8	19-25	3	44	180	7.1
	1.8-2.4	26-35	4	58	180	7.1
	2.3-2.9	33-41	5.5	80	180	7.1
VB_60	1.3-1.8	19-25	3	44	280	11.0
	1.8-2.4	26-35	4	58	280	11.0
	2.3-2.9	33-41	5.5	80	280	11.0

VBD/R thrust capabilities

Size	Spring range		Thrust capabilities							Max, allowable pressure	
			VBR (Reverse acting) N	VBD (Direct acting) N							
	Supply air set pressure, bar										
	3,2	4		4.5	5	5.5	6				
bar	psi	N	N						bar	psi	
32	1.3-1.8	19-25	-	11356	17583	21478	25373	29268	33163	8.5	123
	1.8-2.4	26-35	13033	6178	12414	16309	20204	24099	27994		
	2.3-2.9	33-41	16514	-	-	-	-	-	-		
40	1.3-1.8	19-25	-	15749	28317	34602	40887	47172	53457		
	1.8-2.4	26-35	19241	7571	20146	26431	32716	39001	45286		
	2.3-2.9	33-41	24968	-	-	-	-	-	-		
50	1.3-1.8	19-25	-	28557	44264	54079	63894	73709	83524		
	1.8-2.4	26-35	33970	15504	31211	41026	50841	60656	70471		
	2.3-2.9	33-41	43218	-	-	-	-	-	-		
60	1.3-1.8	19-25	-	32934	55550	69685	38320	97954	112089		
	1.8-2.4	26-35	55794	9060	31676	45811	59945	74080	88215		
	2.3-2.9	33-41	70030	-	-	-	-	-	-		

VB Stroking times

Size	Stroke (mm)	ND model	Stroke time (Sec.)			
			VBC	VBC	VBD/R	VBD/R
			Case 1		Case 2	
			Load	Vent	Load	Vent
VB_32	50	NDX	5	5	6	8
	60		6	6	7	8
	70		7	7	8	9
	80		8	8	8	10
	120		10	10	12	13
VB_40	60	NDX	9	9	10	12
	70		10	10	10	12
	80		11	11	11	15
	120		14	14	15	22
VB_50	60	NDX	11	11	12	14
	70		13	12	13	15
	80		14	13	14	17
	120		20	19	22	23
VBD/R60	60	NDX	13	13	14	16
	70		15	14	15	17
	80		16	15	16	19
	120		22	21	24	25
	140		23	22	25	26
	160		24	23	26	27
	180		25	24	27	28
	200		26	25	28	29
VBC60	140	NDX	15	15	16	23
	160		16	16	17	24
	180		17	17	18	25
	200		18	18	19	26
	280		22	22	23	30

Size	Stroke (mm)	ND model	Stroke time (Sec.)			
			VBC	VBC	VBD/R	VBD/R
			Case 1		Case 2	
			Load	Vent	Load	Vent
VB_32	50	ND 9_06	7	7	10	11
	60		8	8	11	12
	70		9	9	12	13
	80		10	10	13	15
	120		12	12	19	22
	180		15	15	25	30
VB_40	60	ND 9_06	11	11	14	18
	70		12	12	16	20
	80		14	14	18	24
	120		17	17	26	35
	140		20	19	31	40
	180		26	25	41	47
VB_50	60	ND 9_06	15	15	15	19
	70		17	16	17	22
	80		19	18	18	24
	120		27	26	25	36
	140		30	29	29	38
	160		34	33	34	42
VBD/R60	60	ND9_06	29	28	27	38
	70		32	31	31	40
	80		36	35	36	44
	120		40	38	39	46
	140		41	39	40	47
	160		42	40	41	48
	180		43	41	42	49
	200		44	42	43	50
VBC60	140	ND9_06	48	46	47	54
	160		31	30	30	39
	180		35	34	35	43
	200		39	37	38	45
	280		44	42	43	50

VB Temperature ranges

Description	Standard	High temp.	Low temp.	Arctic
Temp. range	-20...+70 °C	-20...+120 °C	-40...+70 °C	-55...+70 °C
Type code ref. (sign 8)	A	H	L	S

Note:

1. Temperature: Environment condition
2. Type code reference: Please see in page 11.
3. Other low temperature range: Please contact Valmet

Note:

1. Mounted with ND 9200 smart positioners and air set only
2. With B72G-2AS-980 air set (1/4")
3. Air supply pressure: 6.0 barg (86 psi)
4. Stroking time accuracy: ± 10 %

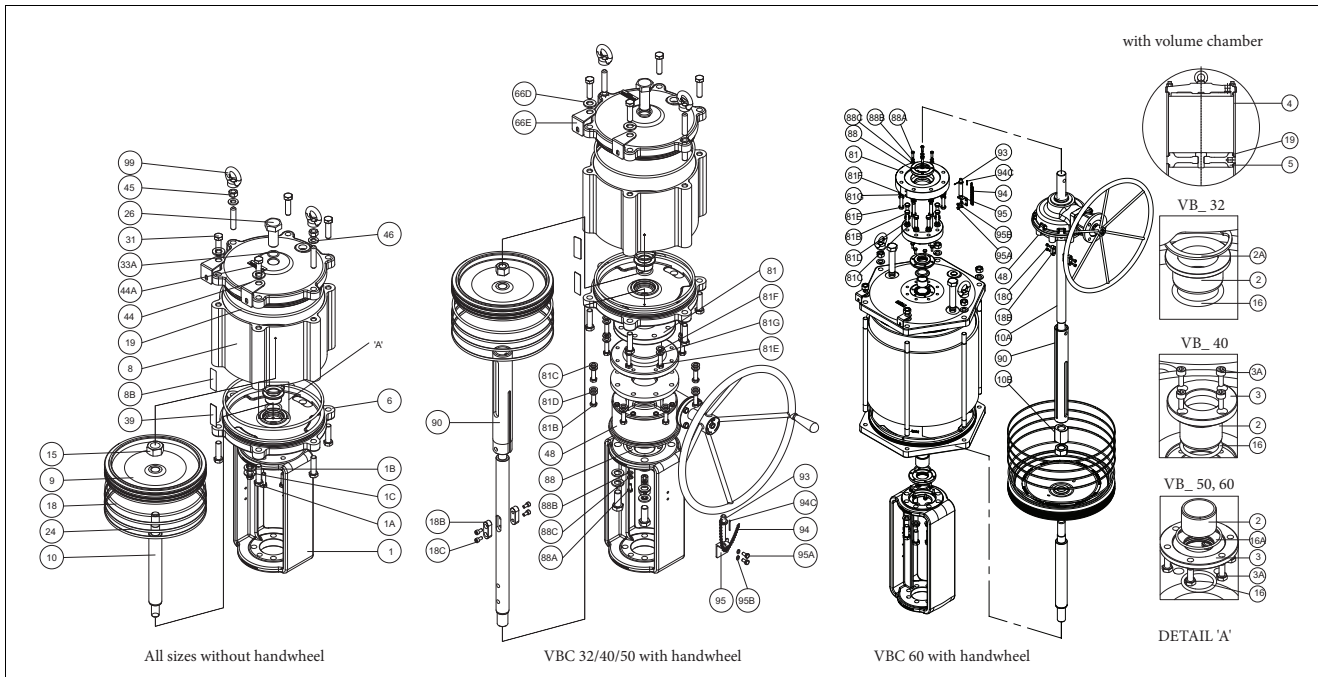
VB Air supply connections

Standard	3/4" NPT for VB 32, 40 1" NPT for VB 50, 60
Optional	Please contact Valmet

Note:

1. Maximum supply pressure for VBC: 10 bar / 145 psi
2. Maximum supply pressure for VBD/R: 8.5 bar / 123 psi

VBC, standard parts and materials

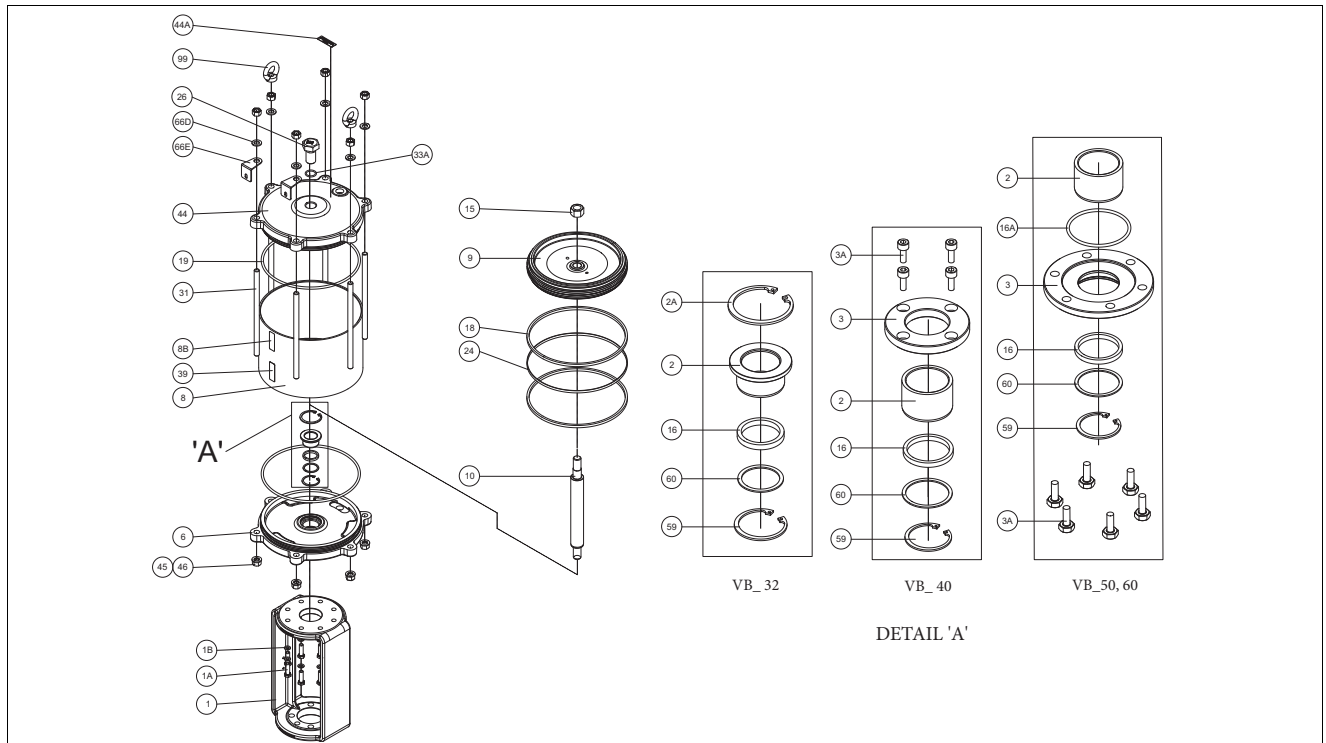


Part no.	Description	Material	Spare part	Part no.	Description	Material	Spare part
1	YOKE	ASTM A216 Gr. WCB		33A	O-RING	NITRILE, NBR	Cat 1
1A	HEXAGON SCREW	ISO 3506 A2-70		39	IDENTIFICATION PLATE	POLYESTER	
1B	WASHER	AISI 304		44	CYLINDER END	EN 1563-GJS-400-15	
1C	SPRING WASHER	AISI 304		44A	WARNING PLATE	POLYESTER	
2	SLIDE BEARING	BRONZE	Cat 3	45	HEXAGON NUT	ISO 3506 A2-70, SS STEEL or CARBON STEEL+ZINC	
2A (VB_32)	RETAINER RING	DIN 17222-C67	Cat 3	46	WASHER	AISI 304, CARBON STEEL+ZINC	
3 (VB_40, 50, 60)	COVER PLATE	AISI 304		48	GEAR BOX	DUCTILE IRON	
3A (VB_40)	SOCKET HEAD SCREW	ISO3506 A2-70	Cat. 3	66D	SPRING WASHER	AISI 304	
3A (VB_50, 60)	HEXAGON SCREW	ISO 3506 A2-70/80	Cat 3	66E	BRACKET	AISI 304	
4	VOLUME CHAMBER	EN 1706 G-AISI 10Mg+ANODIZED		81	GEAR BOX COVER	ASTM A105	
5	MIDDLE PLATE	EN 1563-GJS-400-15		81B	HEXAGON SCREW	ISO 3506 A2-70	
6	CYLINDER BASE	EN 1563-GJS-400-15		81C	WASHER	AISI 304	
8	CYLINDER PIPE	EN 1706 G-AISI 10Mg+ANODIZED	Cat 3	81D	SPRING WASHER	AISI 304	
8B	STICKER	PLASTIC		81E	HEXAGON SCREW	ISO 3506 A2-70	
9	PISTON	EN 1561-GJL-200	Cat 3	81F	WASHER	AISI 304	
10	PISTON ROD	PISTON ROD STEEL+HCr	Cat 3	81G	SPRING WASHER	AISI 304	
15	HEXAGON NUT	ASTM A194 gr. 2HM	Cat 3	88	LIMITER	AISI 304	
16	O-RING	NITRILE, NBR	Cat 1	88A	HEXAGON SCREW	ISO 3506 A2-70	
16A (VB_50, 60)	O-RING	NITRILE, NBR	Cat 1	88B	WASHER	AISI 304	
18	O-RING	NITRILE, NBR	Cat 1	88C	SPRING WASHER	AISI 304	
18B	KEY	AISI 304+HCr		90	GEAR PIPE	AISI 316L	
18C	SOCKET HEAD SCREW	ISO 3506 A2-70		93	PIN	ASTM A564 gr. 630 H1100	
19	O-RING	NITRILE, NBR	Cat 1	94	TAPER CHAIN	STAINLESS STEEL	
24	PISTON RING	UHMWPE	Cat 1	94C	SPLIT PIN	CARBON STEEL+ZINC	
26	LIMIT SCREW	ISO 3506 A2-70	Cat 3	95	HOLDER	AISI 304	
31 (VB_32)	HEXAGON SCREW	ISO 3506 A2-70		95A	HEXAGON SCREW	DIN 267 PART 11 A2-70	
31 (VB_40, 50, 60)	STUD	ISO 3506 A2-70, EN 10083-1.7218+ZINC		95B	WASHER	AISI 304	
				99	LIFTING EYE NUT	CARBON STEEL	
				101A	PISTON ROD	PISTON ROD STEEL+HCr	
				101B	COUPLING	ASTM A564 gr. 630 H1025	

NOTE

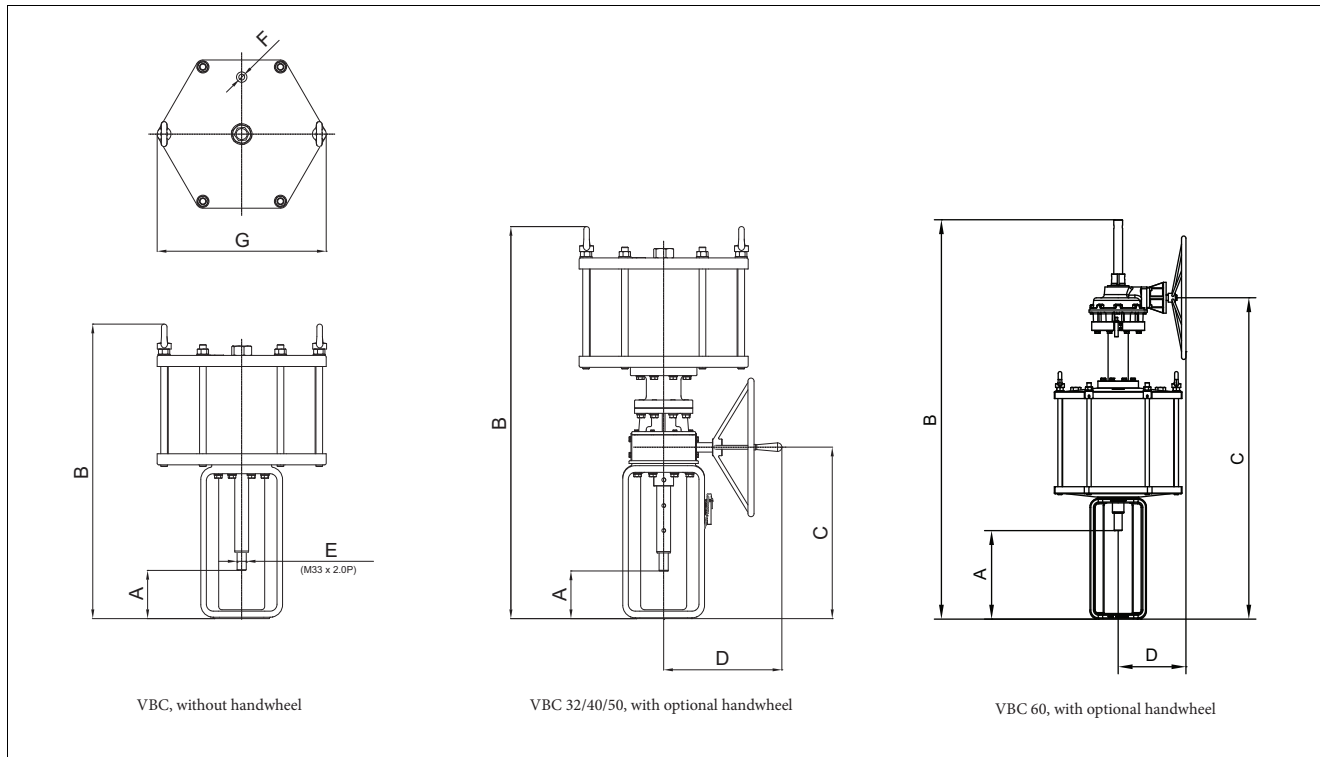
- Part No. "2A" VBC32
- Part No. "3 / 3A" VBC 40, 50, 60
- Part No. "16A" VBC 50, 60
- Part No. "31" Material VBC30 ISO 3506 A2-70, VBC40/50/60 EN 10083-1.7218+ZINC
- Part No. "45 / 46" Material VBC30 ISO 3506 A2-70 / AISI 304, VBC40/50/60 SS STEEL or CARBON STEEL+ZINC / CARBON STEEL+ZINC
- Conguration and materials vary depending on usage temperature.

VBC, arctic version parts and materials



Part no.	Description	Material	Spare part
1	YOKE	ASTM A216 Gr. WCB	
1A	HEXAGON SCREW	ISO 3506 A2-70	
1B	WASHER	AISI 304	
2	SLIDE BEARING	BRONZE	Cat 3
2A (VB_32)	RETAINER RING	DIN 17222-C67	Cat 3
3 (VB_40, 50, 60)	COVER PLATE	AISI 304	
3A (VB_40)	SOCKET HEAD SCREW	ISO3506 A2-70	Cat. 3
3A (VB_50, 60)	HEXAGON SCREW	ISO 3506 A2-70/80	Cat 3
4	VOLUME CHAMBER	EN 10025-S355JO	
5	MIDDLE PLATE	EN 1563-GJS-400-15	
6	CYLINDER BASE	EN 1563-GJS-400-15	
8	CYLINDER PIPE	EN 10025-S355JO	Cat 3
8B	STICKER	PLASTIC	
9	PISTON	EN 1563-GJS-400-15	Cat 3
10	PISTON ROD	PISTON ROD STEEL+HCr	Cat 3
15	HEXAGON NUT	ASTM A194 gr. 2HM	Cat 3
16	LIP-SEAL	AISI 301+PTFE+POLYIMIDE	Cat 1
16A (VB_50, 60)	O-RING	NITRILE, NBR	Cat 1
18	LIP-SEAL	AISI 301+PTFE+POLYIMIDE	Cat 1
19	O-RING	NITRILE, NBR	Cat 1
24	PISTON RING	UHMWPE	Cat 1
26	LIMIT SCREW	ISO 3506 A2-70/80	Cat 3
31	STUD	EN 10083-1.7218+ZINC	
33A	O-RING	NITRILE, NBR	Cat 1
39	IDENTIFICATION PLATE	POLYESTER	
44	CYLINDER END	EN 1563-GJS-400-15	
44A	WARNING PLATE	POLYESTER	
45	HEXAGON NUT	ISO 898/2 8+ZINC+PASS	
46	WASHER	CARBON STEEL+ZINC+PASS	
49	RETAINER RING	DIN 17222-C67	
60	SPACER RING	AISI 316	
66D	SPRING WASHER	AISI 304	
66E	BRACKET	AISI 304	
99	LIFTING EYE NUT	CARBON STEEL	

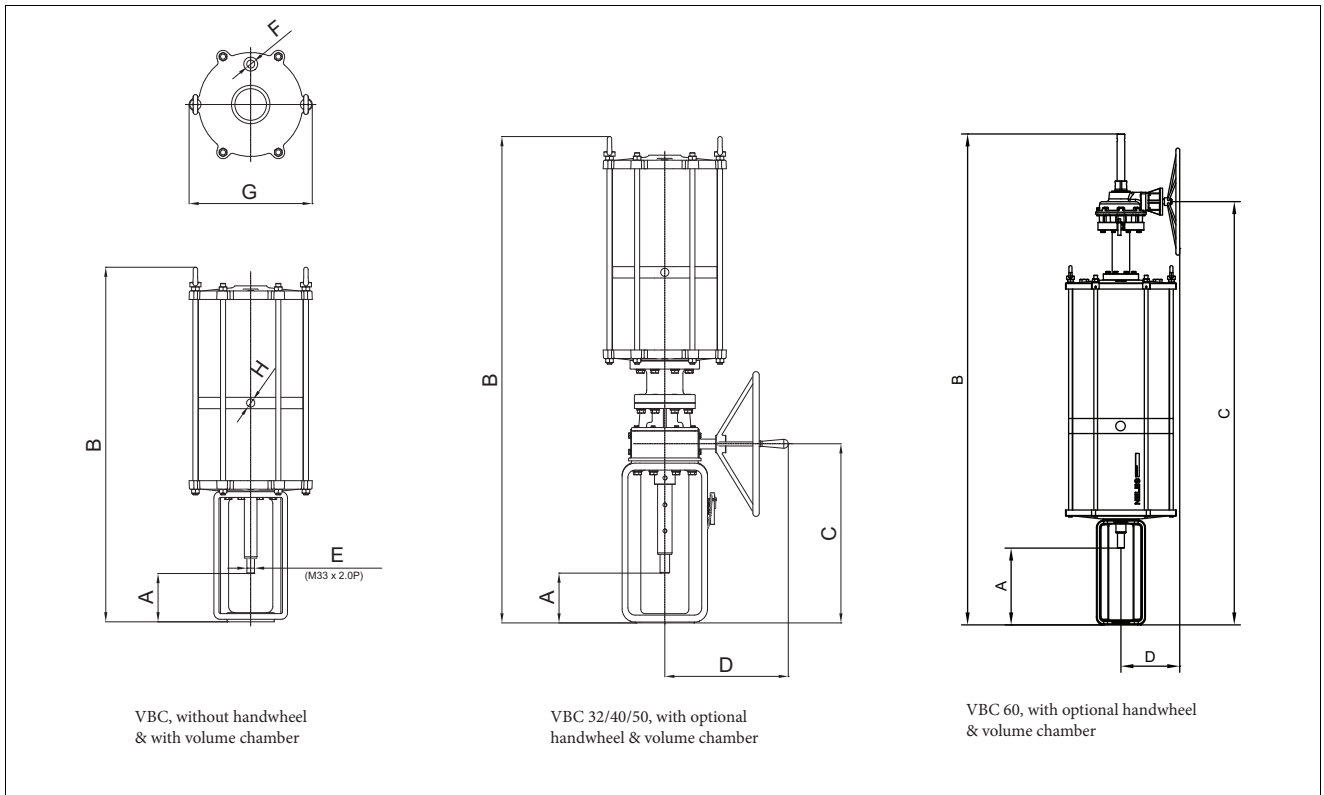
VBC, actuator dimensions



Dimension (mm)	Stroke range	Without handwheel					With handwheel				
		A	B	F	G	Weight (kg)	A	B	C	D	Weight (kg)
VBC32	50 ... 120	153	769	3/4" NPT	392	96	158	1093	471	417	147
VBC40	60 ... 180	185	1054	3/4" NPT	499	190	178	1403	619	427	263
VBC50	60 ... 180	184	1066	1" NPT	610	297	179	1415	619	427	371
VBC60	120 ... 280	222	1404	1" NPT	724	507	222	2265	1823	333	660

Dimension (inch)	Stroke range	Without handwheel					With handwheel				
		A	B	F	G	Weight (lbs)	A	B	C	D	Weight (lbs)
VBC32	1.97 ... 4.72	6	30.3	3/4" NPT	15.4	212	6.2	43	18.5	16.4	324
VBC40	2.36 ... 7.09	7.3	41.5	3/4" NPT	19.6	419	7	55.2	24.4	16.8	580
VBC50	2.36 ... 7.09	7.2	42	1" NPT	24	655	7	55.7	24.4	16.8	818
VBC60	4.72 ... 11.02	8.7	55.3	1" NPT	28.5	1117.7	4.7	89.2	71.8	13.1	1455

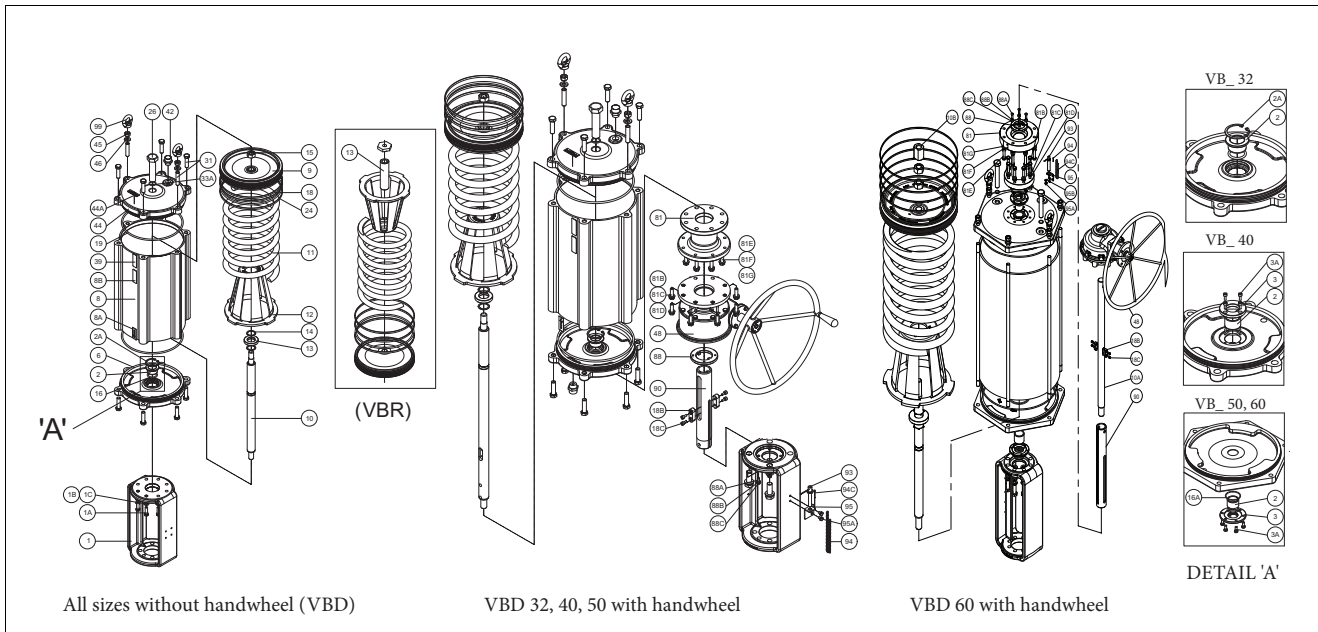
VBC, actuator dimensions



Dimension (mm)	Stroke range	Without handwheel						With handwheel				
		A	B	F	G	H	Weight (kg)	A	B	C	D	Weight (kg)
VBC 32_V	50 ... 120	153	1116	3/4" NPT	390	3/4" NPT	129	158	1440	471	417	180
VBC 40_V	60 ... 180	185	1550	3/4" NPT	499	3/4" NPT	255	178	1899	619	427	329
VBC 50_V	60 ... 180	184	1570	1" NPT	610	1" NPT	415	179	1919	619	427	490
VBC 60_V	120 ... 280	222	1903	1" NPT	724	1" NPT	787	222	3045	2603	333	950

Dimension (inch)	Stroke range	Without handwheel						With handwheel				
		A	B	F	G	H	Weight (lbs)	A	B	C	D	Weight (lbs)
VBC 32_V	1.97 ... 4.72	6	43.9	3/4" NPT	15.4	3/4" NPT	284	6.2	56.7	18.5	16.4	397
VBC 40_V	2.36 ... 7.09	7.3	61	3/4" NPT	19.7	3/4" NPT	562	7	74.8	24.4	16.8	725
VBC 50_V	2.36 ... 7.09	7.2	61.8	1" NPT	24	1" NPT	915	7	75.6	24.4	16.8	1080
VBC 60_V	4.72 ... 11.02	4.7	74.9	1" NPT	28.5	1" NPT	1735	4.7	119.9	102.5	13.1	2094

VBD/R, standard parts and materials



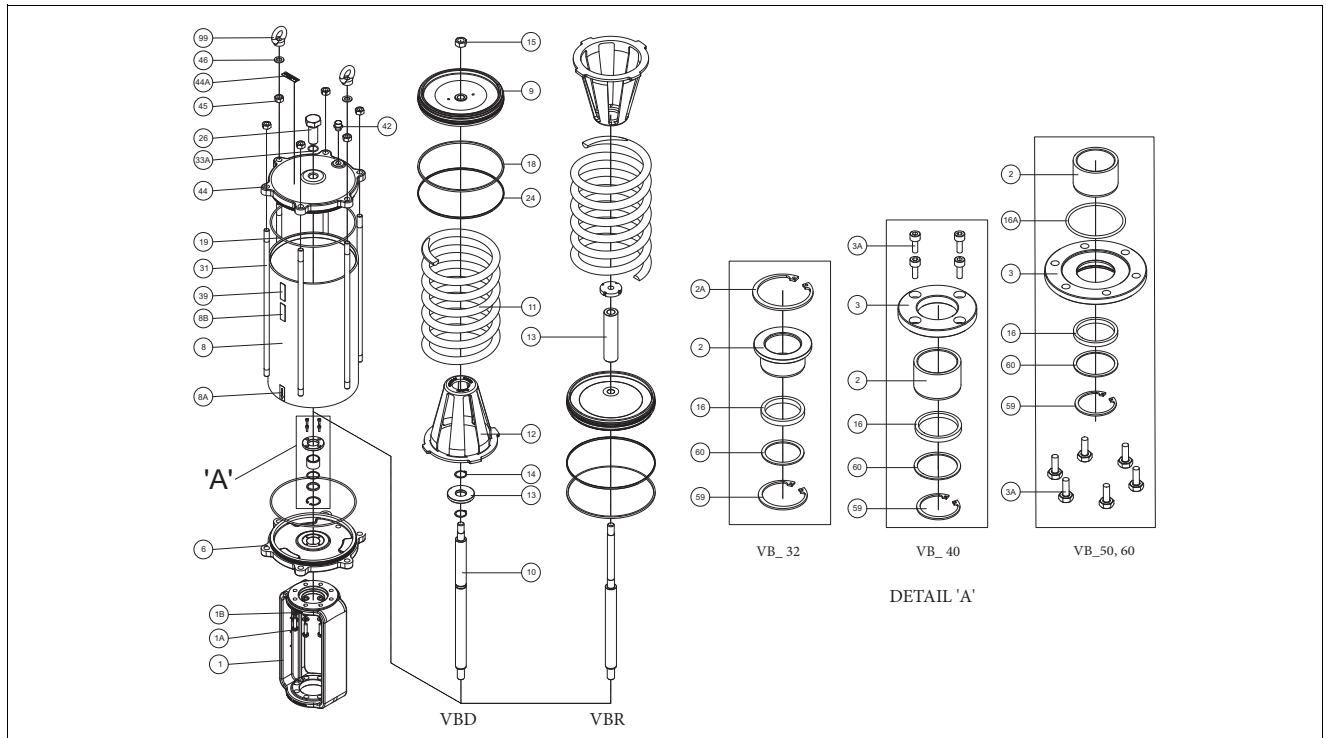
Part no.	Description	Material	Spare parts
1	YOKE	ASTM A216 Gr. WCB	
1A	HEXAGON SCREW	ISO 3506 A2-70	
1B	WASHER	AISI 304	
1C	SPRING WASHER	AISI 304	
2	SLIDE BEARING	BRONZE	Cat 3
2A (VB_32)	RETAINER RING	DIN 17222-C67	Cat 3
3 (VB_40, 50, 60)	COVER PLATE	AISI 304	
3A (VB_40)	SOCKET HEAD SCREW	ISO3506 A2-70	Cat. 3
3A (VB_50, 60)	HEXAGON SCREW	ISO 3506 A2-70/80	Cat 3
6	CYLINDER BASE	EN 1563-GJS-400-15	
8	CYLINDER PIPE	EN 1706 G-AISI 10Mg+ANODIZED	Cat 3
8A	DIRECTION TAG	POLYESTER	
8B	STICKER	PLASTIC	
9	PISTON	EN 1561-GJL-200	Cat 3
10	PISTON ROD	PISTON ROD STEEL+HCr	Cat 3
11	COIL SPRING	EN 10089-51CrV4	Cat 3
12	SPRING PLATE	EN 1563-GJS-400-15	Cat 3
13	RING(VBD), MOUNTING PIPE(VBR)	EN 10025-S355JO	Cat 3
14 (VBD)	RETAINER RING	DIN 17222-C67	Cat 3
15	HEXAGON NUT(VBD), TORQUE NUT(VBR)	ISO 3506 A2-70, DIN 1651-1.0711	Cat 3
16	O-RING	NITRILE, NBR	Cat 1
16A (VB_50, 60)	O-RING	NITRILE, NBR	Cat 1
18	O-RING	NITRILE, NBR	Cat 1
18B	KEY	AISI 304+HCr	
18C	SOCKET HEAD SCREW	ISO 3506 A2-70	
19	O-RING	NITRILE, NBR	Cat 1
24	PISTON RING	UHMWPE	Cat 1
26	LIMIT SCREW	ISO 3506 A2-70/80	Cat 3

Part no.	Description	Material	Spare parts
31 (VB_32)	HEXAGON SCREW	ISO 3506 A2-70	
31	STUD	ISO 3506 A2-70, EN 10083-1.7218+ZINC	
33A	O-RING	NITRILE, NBR	Cat 1
39	IDENTIFICATION PLATE	POLYESTER	
42	SILENCER	AISI 304	
44	CYLINDER END	EN 1563-GJS-400-15	
44A	WARNING PLATE	POLYESTER	
45	HEXAGON NUT	ISO 3506 A2-70, ISO 898/2 8+ZINC+PASS.	
46	WASHER	AISI 304, CARBON STEEL+ZINC+PASS.	
48	GEAR BOX	DUCTILE IRON	
81	GEAR BOX COVER	ASTM A105	
81B	HEXAGON SCREW	ISO 3506 A2-70	
81C	WASHER	AISI 304	
81D	SPRING WASHER	AISI 304	
81E	HEXAGON SCREW	ISO 3506 A2-70	
81F	WASHER	AISI 304	
81G	SPRING WASHER	AISI 304	
88	LIMITER	AISI 304	
88A	HEXAGON SCREW	ISO 3506 A2-70	
88B	WASHER	AISI 304	
88C	SPRING WASHER	AISI 304	
90	GEAR PIPE	AISI 316L	
93	PIN	ASTM A564 gr. 630 H1100	
94	TAPER CHAIN	STAINLESS STEEL	
94C	SPLIT PIN	CARBON STEEL+ZINC	
95	HOLDER	AISI 304	
95A	HEXAGON SCREW	DIN 267 PART 11 A2-70	
95B	WASHER	AISI 304	
99	LIFTING EYE NUT	CARBON STEEL	
010A	PISTON ROD	PISTON ROD STEEL+HCr	
010B	COUPLING	ASTM A564 gr. 630 H1025	

NOTE

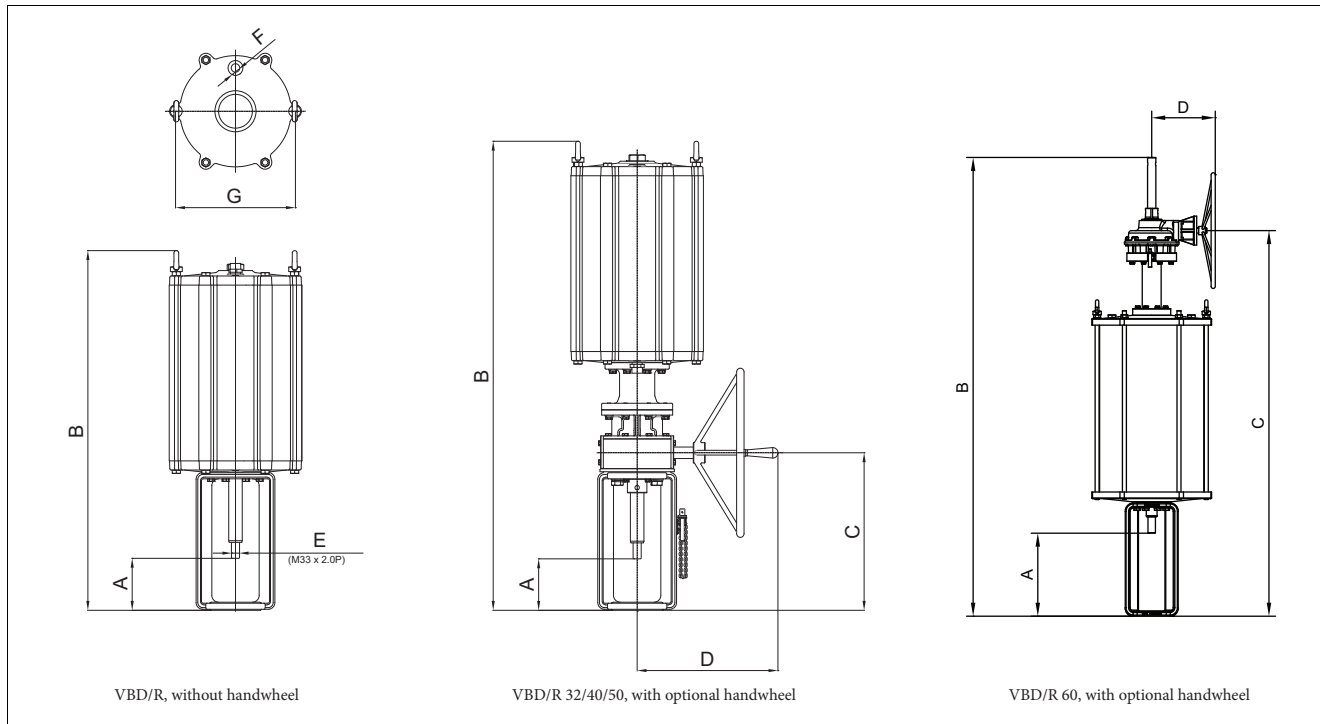
- Part No. "2A" VBC32
- Part No. "3 / 3A" VBC 40, 50, 60
- Part No. "16A" VBC 50, 60
- Part No. "31" Material: ISO 3506 A2-70(VB_32), ISO 3506 A2-70 and EN 10083-1.7218+ZINC(VB_40/50/60)
- Part No. "45 / 46" Material: ISO 3506 A2-70(VB_32), ISO 898/2+ZINC+PASS.(VB_40/50/60)
- Conguration and materials vary depending on usage temperature.

VBD/R, arctic version parts and materials



Part no.	Description	Material	Spare part
1	YOKE	ASTM A216 Gr. WCB	
1A	HEXAGON SCREW	ISO 3506 A2-70	
1B	WASHER	AISI 304	
2	SLIDE BEARING	BRONZE	Cat 3
2A (VB_32)	RETAINER RING	DIN 17222-C67	Cat 3
3 (VB_40, 50, 60)	COVER PLATE	AISI 304	
3A (VB_40)	SOCKET HEAD SCREW	ISO3506 A2-70	Cat. 3
3A (VB_50, 60)	HEXAGON SCREW	ISO 3506 A2-70/80	Cat 3
6	CYLINDER BASE	EN 1563-GJS-400-15	
8	CYLINDER PIPE	EN 10025-S355JO	Cat 3
8A	DIRECTION TAG	POLYESTER	
8B	STICKER	PLASTIC	
9	PISTON	EN 1563-GJS-400-15	Cat 3
10	PISTON ROD	PISTON ROD STEEL+HCr	Cat 3
11	COIL SPRING	EN 10089-51crV4	Cat 3
12	SPRING PLATE	EN 1563-GJS-400-15	Cat 3
13	RING(VBD), MOUNTING PIPE(VBR)	EN 10025-S355JO	Cat 3
14	RETAINER RING	DIN 17222-C67	Cat 3
15	HEXAGON NUT(VBD), TORQUE NUT(VBR)	ISO 3506 A2-70, DIN 1651-1.0711	Cat 3
16	LIP-SEAL	AISI 301+PTFE+POLYIMIDE	Cat 1
16A (VB_50, 60)	O-RING	NITRILE, NBR	Cat 1
18	LIP-SEAL	AISI 301+PTFE+POLYIMIDE	Cat 1
19	O-RING	NITRILE, NBR	Cat 1
24	PISTON RING	UHMWPE	Cat 1
26	LIMIT SCREW	ISO 3506 A2-70/80	Cat 3
31	STUD	EN 10083-1.7218+ZINC	
33A	O-RING	NITRILE, NBR	Cat 1
39	IDENTIFICATION PLATE	POLYESTER	
42	SILENCER	AISI 304	
44	CYLINDER END	EN 1563-GJS-400-15	
44A	WARNING PLATE	POLYESTER	
45	HEXAGON NUT	ISO 898/2 8+ZINC+PASS	
46	WASHER	CARBON STEEL+ZINC+PASS	
59	RETAINER RING	DIN 17222-C67	
60	SPACER RING	AISI 316	
99	LIFTING EYE NUT	CARBON STEEL	

VBD/R, actuator dimensions



Dimension (mm)	Stroke range	Without handwheel					With handwheel				
		A	B	F	G	Weight (kg)	A	B	C	D	Weight (kg)
VBD/R 32	50 ... 120	278 / 158	1069	3/4" NPT	392	154	280 / 160	1393	471	417	205
VBD/R 40	60 ... 180	365 / 185	1449	3/4" NPT	499	314	358 / 178	1798	619	427	392
VBD/R 50	60 ... 180	365 / 185	1531	1" NPT	610	503	358 / 178	1879	619	427	556
VBD/R 60	60 ... 280	222	1913	1" NPT	724	826	222	2774	2332	333	986

Dimension (inch)	Stroke range	Without handwheel					With handwheel				
		A	B	F	G	Weight (lbs)	A	B	C	D	Weight (lbs)
VBD/R 32	1.97 ... 4.72	10.9 / 6.2	42	3/4" NPT	15.4	340	11 / 6.3	54.8	18.5	16.4	452
VBD/R 40	2.36 ... 7.09	14.4 / 7.3	57	3/4" NPT	19.6	692	14 / 7	70.8	24.4	16.8	864
VBD/R 50	2.36 ... 7.09	14.4 / 7.3	60.3	1" NPT	24	1109	14 / 7	74	24.4	16.8	1226
VBD/R 60	2.36 ... 11.02	8.7	75.3	1" NPT	28.5	1821	8.7	109.2	91.8	13.1	2173

How to order

Pneumatic cylinder actuator, linear type, double acting, series VBC

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
VB	C	32	X	070	A	E	A	K	A	X	D	X	A

Actuator constructions

1.	ACTUATOR SERIES
VB	Pneumatic cylinder actuator, linear type

2.	FUNCTION CODE
C	Double acting (no spring)

3.	ACTUATOR SIZE	
	Cylinder inner diameter	
32	Ø315 mm	
40	Ø400 mm	
50	Ø500 mm	
60	Ø600 mm	

4.	SPRING RANGE
X	Not applicable (no spring)

5.	STROKE			
	VBC 32	VBC 40	VBC 50	VBC 60
040	IQI	IQI	IQI	IQI
050	IQI	IQI	IQI	IQI
060	STD	STD	STD	IQI
070	STD	STD	STD	IQI
080	STD	STD	STD	IQI
120	STD	STD	STD	IQI
140	IQI	STD	STD	STD
160	IQI	STD	STD	STD
180	IQI	STD	STD	STD
200	NA	NA	NA	STD
280	NA	NA	NA	STD
YYY	Contact IQI for special cases			

Materials

6.	CYLINDER MATERIAL
A	Aluminium
S	Carbon steel + HCr (Offshore)

7.	PISTON MATERIAL
E	EN 1561-GJL-200 for VB32/40/50, EN1563-GJS-400 for VB60
S	EN 1563-GJL-400 (Arctic version)

8.	SEAL MATERIAL	
	Material	Temperature range
A	Nitrile rubber	General, -20...+70 °C
L	ECO (Epiclohydrin rubber)	Low temp, -40...+70 °C
S	Arctic version	Arctic, -55...+70 °C
Optional seal material		
H	Viton (Fluorocarbon rubber)	High temp, -20...+120 °C

9.	BOLTING MATERIAL
K	SS for VB 32, CS+Zinc plating for VB 40/50/60
A	CS+Zinc plating for steel cylinder (Offshore)

Others

10.	POSITION LIMITATION
A	General construction
M	Maximum opening stopper (%)
N	Minimum closing stopper (%)

11.	EXTERNAL OVERRIDE OPTION
X	Not applicable
A	Handwheel, side mounted for VB_32/40/50
T	Handwheel, top-side mounted for VB_60
Y	Special mounting side or special construction

12.	AIR SUPPLY CONNECTION	
	Connection size	Actuator size
D	3/4" NPT	VB 32/40
E	1" NPT	VB 50/60

13.	OPTIONS
X	Not applicable
V	Volume chamber
Y	Special

14.	MODEL CODE
A	Original model

How to order

Pneumatic cylinder actuator, linear type, spring return, series VBR / VBD

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
VB	R	32	E	070	A	E	A	K	A	X	D	X	A

Actuator constructions

1.	ACTUATOR SERIES
VB	Pneumatic cylinder actuator, linear type

2.	FUNCTION CODE		
	Direction	Spring to	Air to stem
R	Reverse acting	Close	Retracted
D	Direct acting	Open	Extended

3.	ACTUATOR SIZE	
	Cylinder inner diameter	
32	Ø315 mm	
40	Ø400 mm	
50	Ø500 mm	
60	Ø600 mm	

4.	SPRING RANGE
E	General spring
K	Light spring (spring option for VBD)
V	Strong spring (spring option for VBR)

5.	STROKE			
	VBD/R 32	VBD/R 40	VBD/R 50	VBD/R 60
040	IQI	IQI	IQI	IQI
050	IQI	IQI	IQI	IQI
060	STD	STD	STD	STD
070	STD	STD	STD	STD
080	STD	STD	STD	STD
120	STD	STD	STD	STD
140	IQI	STD	STD	STD
160	IQI	STD	STD	STD
180	IQI	STD	STD	STD
200	NA	NA	NA	STD
280	NA	NA	NA	STD
YYY	Contact IQI for special cases			

Materials

6.	CYLINDER MATERIAL
A	Aluminium
S	Carbon steel + HCr (Offshore)

7.	PISTON MATERIAL
E	EN 1561-GJL-200 for VB32/40/50, EN1563-GJS-400 for VB60
S	EN 1563-GJL-400 (Arctic version)

8.	SEAL MATERIAL	
	Material	Temperature range
A	Nitrile rubber	General, -20...+70 °C
L	ECO (Epiclohydrin rubber)	Low temp, -40...+70°C
S	Arctic version	Arctic, -55...+70 °C

Optional seal material		
H	Viton (Fluorocarbon rubber)	High temp, -20...+120 °C

9.	BOLTING MATERIAL
K	SS for VB 32, CS+Zinc plating for VB 40/50/60
A	CS+Zinc plating for steel cylinder (Offshore)

Others

10.	POSITION LIMITATION
A	General construction
M	Maximum opening stopper (%)
N	Minimum closing stopper (%)

11.	EXTERNAL OVERRIDE OPTION
X	Not applicable
A	Handwheel, Side mounted for VB_32/40/50
T	Handwheel, top-side mounted for VB_60
Y	Special mounting side or special construction

12.	AIR SUPPLY CONNECTION	
	Connection size	Actuator size
D	3/4" NPT	VB 32/40
E	1" NPT	VB 50/60

13.	OPTIONS
X	Not applicable
Y	Special

14.	MODEL CODE
A	Original model

Subject to change without prior notice.

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