

JL Guided compact cylinders

The guided compact cylinders JL series are studied for applications which need reduced dimensions and in case anti-rotation has to be guaranteed.

Typical applications: thrust transport and lifting of pieces (LIFTER), stop function (STOPPER)

Bores: 12 - 16 - 20 - 25 - 32 - 40 - 50 - 63

Versions: guide on bearings (JLS) ideal for high side loads, guide on bearings with ball recirculation (JLV) suitable for high precision applications and uniform speed

Fixing: 3 type fixing (pierced hole bolt, back tapped hole, bottom tapped hole)

Connexions: on two sides

Sensors: flush-mounted on two sides

Cushionings: mechanical limit switches



TECHNICAL CHARACTERISTICS

Ambient temperature	-5 ÷ +60 °C		
Fluid	compressed air with or without lubrication		
Pressure	1 ÷ 10 bar		
Operation	double-acting		
Cushioning	elastic buffers		
Connections	M5	G1/8	G1/4
Bores	12 - 16	20 - 25 - 32 - 40	50 - 63

CONSTRUCTIVE CHARACTERISTICS

Body	aluminium alloy
Rods	JLS = chromium-plated steel JLV = hardened and chromium-plated steel
Piston	aluminium alloy
Piston rod	Ø 12 - 16 - 20 = stainless steel AISI 303 chromium-plated Ø 25 - 32 - 40 - 50 - 63 = steel C45 chromium-plated
Rods guide	bearing or bushing with ball recirculation
Seals	NBR
Flange	steel
Magnet	standard

CODIFICATION KEY

JL	S	012	0030
1	2	3	4

1 Series	2 Guide bushing	3 Bore	
JL	S = bearings V = bushings with ball recirculation	12 = 012	32 = 032
		16 = 016	40 = 040
		20 = 020	50 = 050
		25 = 025	63 = 063

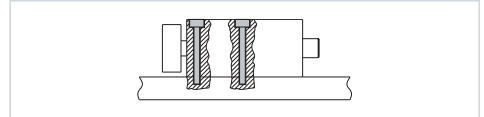
4 Stroke

- 10 = 0010
- 20 = 0020
- 25 = 0025
- 30 = 0030
- 40 = 0040
- 50 = 0050
- 75 = 0075
-
-
-

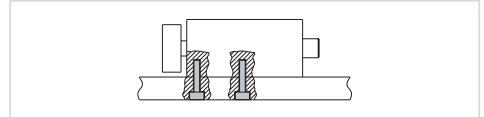
Ø	Strokes (mm)											
	10	20	25	30	40	50	75	100	125	150	175	200
12												
16												
20												
25												
32												
40												
50												
63												

Mounting schemes

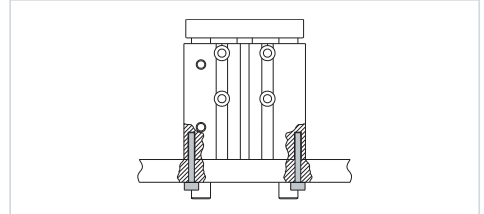
Top mount



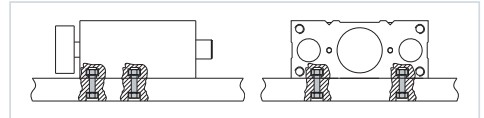
Side mount



Bottom mount

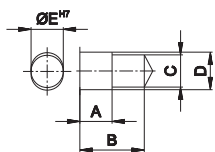


T-slot side mount

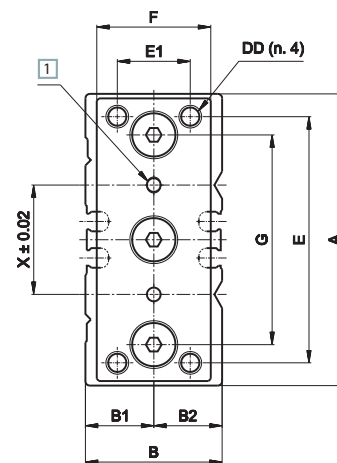
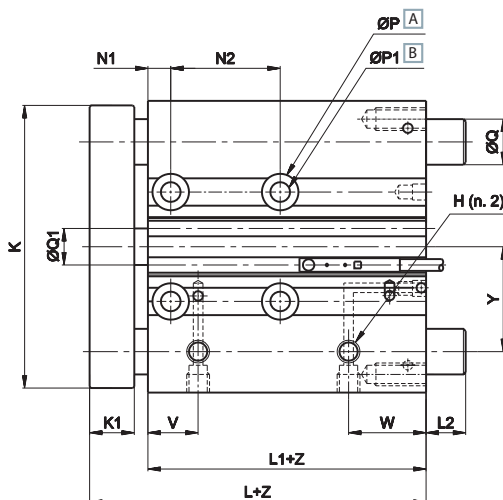
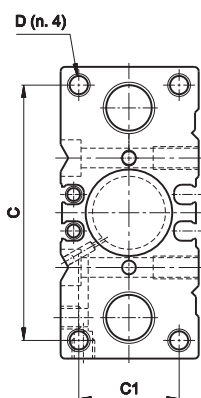
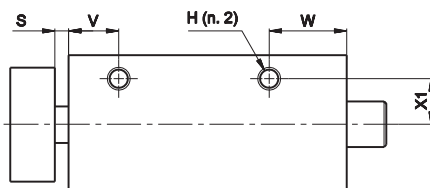
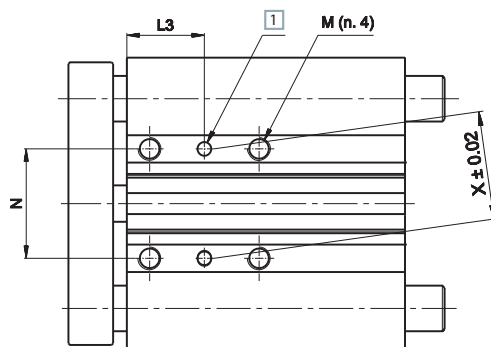


JLS/JLV Ø12 ÷ Ø32

1 Detail



Ø	A	B	C	D	E
12	3	6	3	3,5	3
16	3	6	3	3,5	3
20	3	6	3	3,5	3
25	3	6	4	4,5	4
32	3	6	4	4,5	4



Ø	A	B	B1	B2	C	C1	D	DD	E	E1	F	G	H	K	K1	L	L1	M
12	58	26	13	13	50	18	M4 x 0,7 x 9	M4 x 0,7	48	14	22	41	M5 x 0,8	56	8	42	29	M5 x 0,8 x 10
16	64	30	15	15	56	22	M5 x 0,8 x 11	M5 x 0,8	54	16	25	46	M5 x 0,8	62	10	44	31	M5 x 0,8 x 8
20	85	36	17	19	72	24	M5 x 0,8 x 13	M5 x 0,8	70	18	30	55	G1/8	81	10	51	35	M6 x 1,0 x 12
25	96	42	21	21	82	30	M6 x 1 x 10	M6 x 1,0	78	26	38	65	G1/8	91	10	51,5	35,5	M6 x 1,0 x 12
32	116	51	26	25	98	34	M8 x 1,25 x 18	M8 x 1,25	96	30	48	80	G1/8	112	12	55,5	35,5	M8 x 1,25 x 16

Ø	N	N1	P	P1	Q1	S	V	W	X	X1	Y	Q (JLS)	Q (JLV)
12	23	5	8 x 4,5	4,3	6	5	11	15	23	8,5	19,5	8	6
16	24	5	8 x 4,5	4,3	8	3	11	17	24	10	23	10	8
20	28	17	9,5 x 5,5	5,6	10	6	12	22	28	11,5	24,5	12	10
25	34	17	9,5 x 5,5	5,2	12	6	11	20	34	13,5	28,5	16	13
32	42	21	11 x 7,5	6,6	16	10	11,5	28	42	16	31	20	16

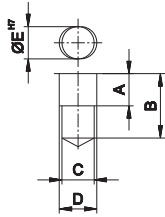
	Strokes (mm) - JLS										Strokes (mm) - JLV														
	10	20	25	30	40	50	75	100	125	150	175	200	10	20	25	30	40	50	75	100	125	150	175	200	
L2	12	0	0	-	0	0	0	18	18	-	-	-	0	0	-	0	14	14	14	14	-	-	-	-	
	16	0	0	-	0	0	0	21	21	-	-	-	0	0	-	0	21	21	21	21	-	-	-	-	
	20	-	0	-	0	0	0	14	14	31	31	31	31	-	0	-	0	27	27	27	27	50	50	50	50
	25	-	0	-	0	0	0	14	14	31	31	31	31	-	2	-	2	32	32	32	32	50	50	50	50
L3	12	15	15	-	15	25	25	25	25	-	-	-	15	15	-	15	25	25	25	25	-	-	-	-	
	16	17	17	-	17	27	27	27	27	-	-	-	17	17	-	17	27	27	27	27	-	-	-	-	
	20	-	29	-	29	39	39	39	39	77	77	77	77	-	29	-	29	39	39	39	39	77	77	77	77
	25	-	29	-	29	39	39	39	39	77	77	77	77	-	29	-	29	39	39	39	39	77	77	77	77
N2	12	14	20	-	20	40	40	40	40	-	-	-	14	20	-	20	40	40	40	40	-	-	-	-	
	16	14	24	-	24	44	44	44	44	-	-	-	14	24	-	24	44	44	44	44	-	-	-	-	
	20	-	24	-	24	44	44	44	44	120	120	120	120	-	24	-	24	44	44	44	120	120	120	120	
	25	-	24	-	24	44	44	44	44	120	120	120	120	-	24	-	24	44	44	44	120	120	120	120	
32	-	-	24	-	-	48	48	48	48	124	124	124	124	-	-	24	-	-	48	48	124	124	124	124	

A N. 4 Spot-facings
B N. 4 Through holes

Z = Strokes

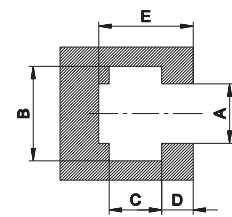
JLS/JLV Ø40 ÷ Ø63

1 Detail

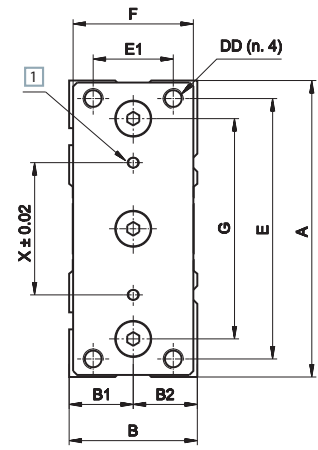
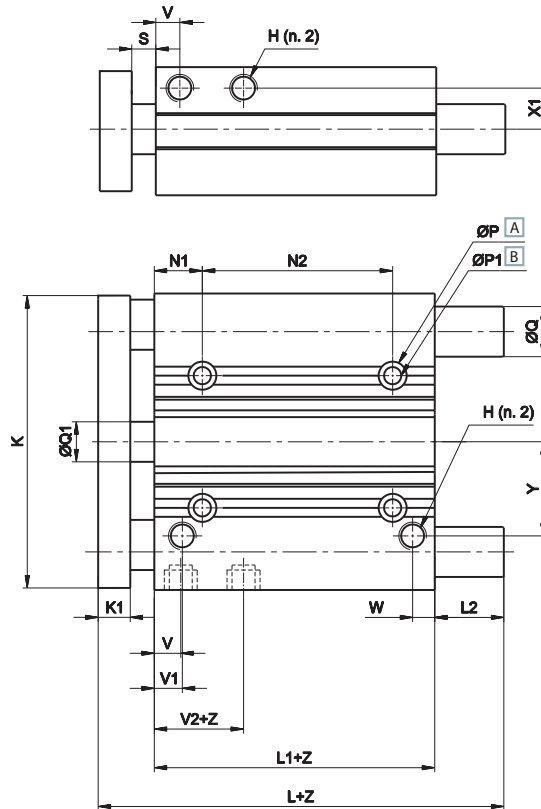
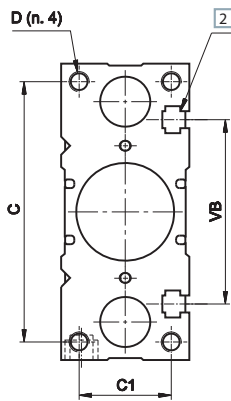


Ø	A	B	C	D	E
40	3	6	4	4,5	4
50	4	8	5	6	5
63	4	8	5	6	5

2 Detail



Ø	A	B	C	D	E
40	6,5	10,5	5,5	4	11
50	8,5	13,5	7,5	4,5	13,5
63	11	17,8	10	7	18,5



Ø	A	B	B1	B2	C	C1	D	DD	E	E1	F	G	H	K	K1	L1	M	N	N1
40	120	54	27	27	106	40	M8 x 1,25 x 20	M8 x 1,25	104	30	44	86	G1/8	118	12	44	M8 x 1,25	50	22
50	148	64	32	32	130	46	M10 x 1,5 x 22	M10 x 1,5	130	40	60	110	G1/4	146	16	44	M10 x 1,5	66	24
63	162	78	39	39	142	58	M10 x 1,5 x 22	M10 x 1,5	130	50	70	124	G1/4	158	16	49	M10 x 1,5	80	24

Ø	P	P1	Q1	S	V	V1	V2	VB	Y	W	X	X1	Q (JLS)	Q (JLV)
40	11 x 7,5	6,6	16	10	14	14	13	72	38	10	50	18	20	16
50	14 x 9	8,6	20	12	12	14	9	92	47	11	66	21,5	25	20
63	14 x 9	8,6	20	12	16,5	16,5	14	110	55	13,5	80	28	25	20

Ø	JLS				JLV					
	L		L2		L			L2		
40	97	102	31	36	81	98	118	15	32	52
50	106,5	118	34,5	46	93	114	134	21	42	62
63	106,5	118	29,5	41	93	114	134	16	37	57
	25 ≤ Z ≤ 50	Z > 50	25 ≤ Z ≤ 50	Z > 50	25 ≤ Z ≤ 50	75 ≤ Z ≤ 100	Z > 100	25 ≤ Z ≤ 50	75 ≤ Z ≤ 100	Z > 100

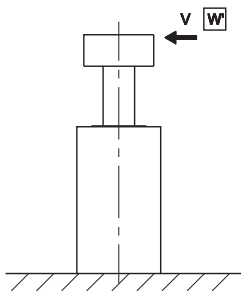
Ø	JLS/JLV					
	N2		L3			
40	24	48	124	34	46	84
50	24	48	124	36	48	86
63	28	52	128	38	50	88
Z	25	50 - 75 - 100	100	25	50 - 75 - 100	100

A N. 4 Spot-facings
B N. 4 Through holes

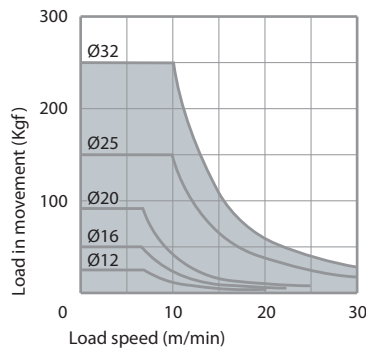
Z = Strokes

OPERATING CONDITIONS
JLS/JLV Ø12 ÷ Ø32

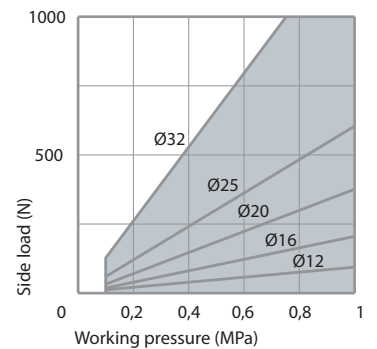
Use of the cylinder as stopping system STOPPER



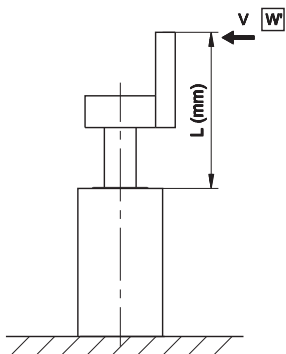
Stopping capacity
JLS (stroke 30 mm)



Applied side load
JLS (stroke 30 mm)



The model JLV with bushing with ball recirculation is not suitable as STOPPER system.



Conversion coefficient

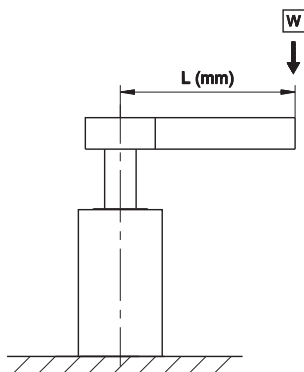
$$W = W' \times \frac{L}{\ell}$$

Ø	12	16	20	25	32
ℓ	40	42	42	42	44

W = maximum weight of the load in movement

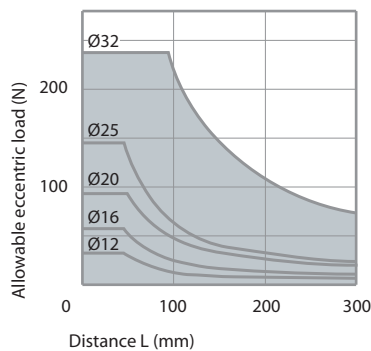
In case of use with load applied as per figure, the load W is the result of the formula beside. Choose the adequate bore depending on the load.

Use of the cylinder as lifting system LIFTER



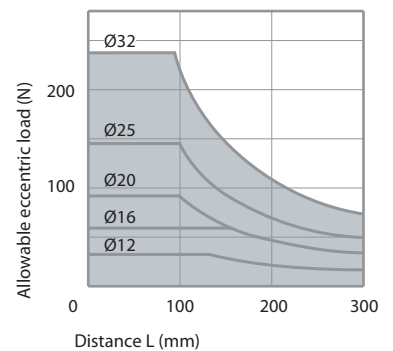
Bearings

JLS (stroke from 10 to 50 mm)

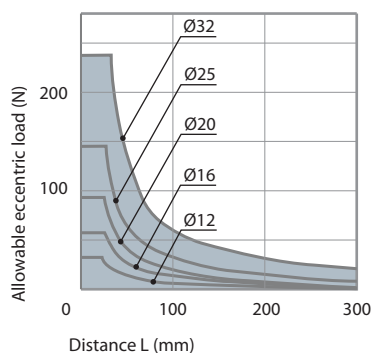


Bearings

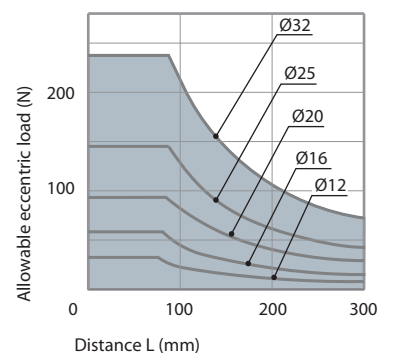
JLS (stroke from 75 to 200 mm)



Bushing with ball recirculation
JLV (stroke from 10 to 50 mm)



Bushing with ball recirculation
JLV (stroke from 75 to 200 mm)

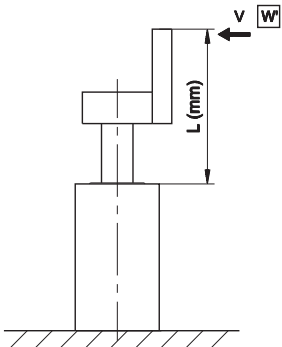


W = maximum allowable eccentric load (pressure 0,5 MPa) with length L

OPERATING CONDITIONS

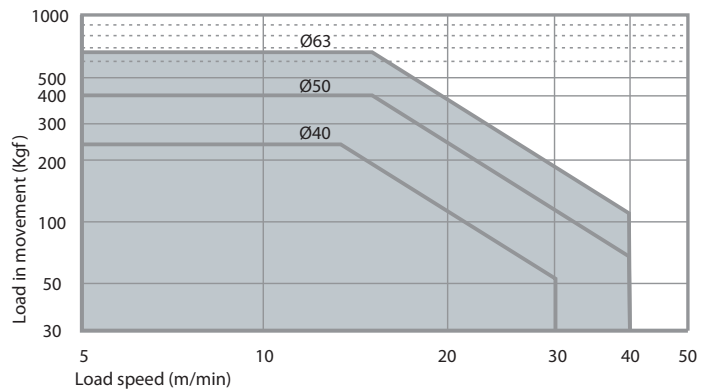
JLS/JLV Ø40 ÷ Ø63

Use of the cylinder as stopping system STOPPER



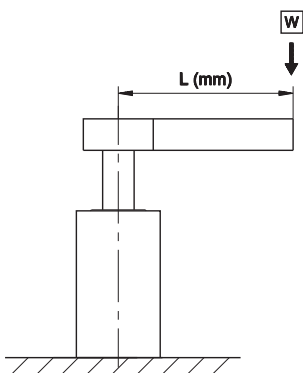
Stopping capacity

JLS (stroke 25 mm)



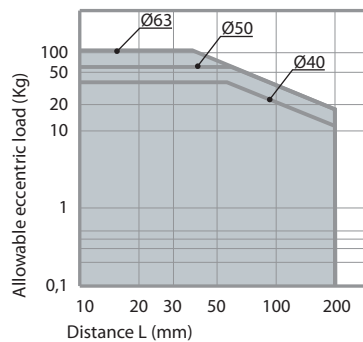
The model JLV with bushing with ball recirculation is not suitable as STOPPER system.

Use of the cylinder as lifting system LIFTER



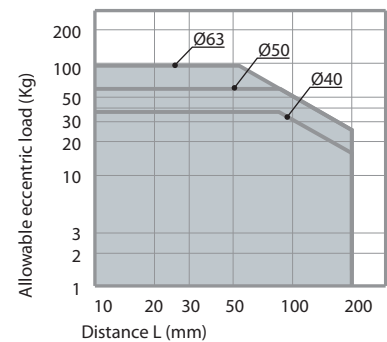
Bearings

JLS (stroke from 25 to 50 mm)



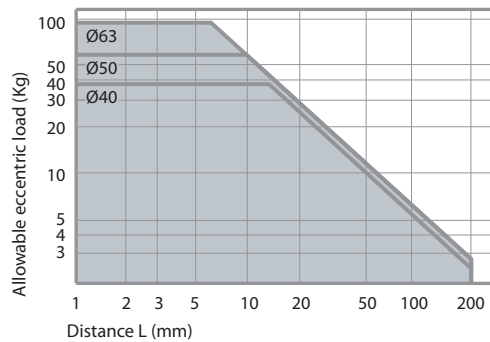
Bearings

JLS (stroke from 75 to 100 mm)



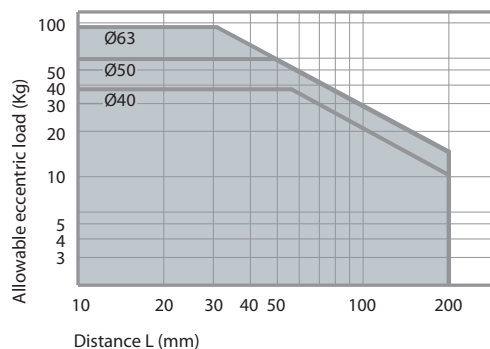
Bushing with ball recirculation

JLV (stroke from 25 to 50 mm)



Bushing with ball recirculation

JLV (stroke from 75 to 100 mm)

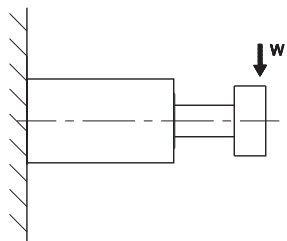


W = maximum allowable eccentric load (pressure 0,5 MPa) with length L

OPERATING CONDITIONS

JLS/JLV Ø12 ÷ Ø63

Allowable side load



Guide with bearings - JLS

(N)

Ø	Strokes (mm)											
	10	20	25	30	40	50	75	100	125	150	175	200
12	31	24	-	19	16	13	37	31	-	-	-	-
16	50	39	-	32	27	24	54	45	-	-	-	-
20	-	51	-	44	39	35	54	46	74	66	59	54
25	-	68	-	59	52	46	72	61	98	88	79	72
32	-	-	165	-	-	129	106	90	138	123	111	101
40	-	-	203	-	-	164	182	159	-	-	-	-
50	-	-	296	-	-	245	273	241	-	-	-	-
63	-	-	296	-	-	245	273	241	-	-	-	-

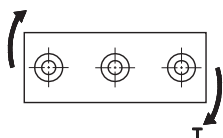
Guide with bushings with ball recirculation - JLV

(N)

Ø	Strokes (mm)											
	10	20	25	30	40	50	75	100	125	150	175	200
12	23	17	-	14	34	30	23	19	-	-	-	-
16	36	29	-	24	59	52	40	33	-	-	-	-
20	-	43	-	36	98	87	69	57	46	40	36	32
25	-	67	-	56	148	132	105	87	70	62	55	50
32	-	-	104	-	-	74	165	138	114	100	90	81
40	-	-	113	-	-	78	129	106	-	-	-	-
50	-	-	120	-	-	83	178	148	-	-	-	-
63	-	-	117	-	-	81	176	145	-	-	-	-

Shows the dynamic allowable value, when actuating the cylinder with lateral load W at the guide rod's top (vertical load against the guide rods).

Allowable moment



Guide with bearings - JLS

(Nm)

Ø	Strokes (mm)											
	10	20	25	30	40	50	75	100	125	150	175	200
12	0,64	0,48	-	0,39	0,32	0,28	0,75	0,63	-	-	-	-
16	1,14	0,9	-	0,74	0,63	0,55	1,23	1,04	-	-	-	-
20	-	1,14	-	1,21	1,07	0,95	1,49	1,25	2,03	1,81	1,63	1,48
25	-	2,19	-	1,88	1,65	1,47	2,31	1,94	3,15	2,8	2,52	2,3
32	-	-	6,61	-	-	5,16	4,23	3,59	5,52	4,93	4,45	4,06
40	-	-	7	-	-	5,66	6,27	5,48	-	-	-	-
50	-	-	13	-	-	10,8	12	10,6	-	-	-	-
63	-	-	14,7	-	-	12,1	13,5	12	-	-	-	-

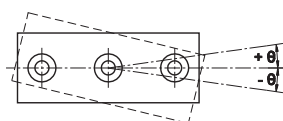
Guide with bushings with ball recirculation - JLV

(Nm)

Ø	Strokes (mm)											
	10	20	25	30	40	50	75	100	125	150	175	200
12	0,47	0,35	-	0,29	0,71	0,62	0,4	0,38	-	-	-	-
16	0,84	0,66	-	0,54	1,35	1,19	0,93	1,76	-	-	-	-
20	-	1,19	-	0,99	2,69	2,4	1,89	1,56	1,26	1,1	0,98	0,88
25	-	2,14	-	1,79	4,74	4,22	3,36	2,78	2,25	1,98	1,76	1,59
32	-	-	4,17	-	-	2,95	6,6	5,52	4,56	4,02	3,59	3,24
40	-	-	5,24	-	-	4,25	7,19	6,33	-	-	-	-
50	-	-	7,02	-	-	5,76	12,3	10,9	-	-	-	-
63	-	-	7,77	-	-	6,35	13,7	12,2	-	-	-	-

Shows the dynamic allowable value, when actuating the cylinder with a rotating torque T at guide rod's top.

Precision



Guide with bearings - JLS

Ø	Precision θ
12	$\pm 0,09^\circ$
16	$\pm 0,08^\circ$
20	$\pm 0,08^\circ$
25	$\pm 0,07^\circ$
32	$\pm 0,07^\circ$
40	$\pm 0,06^\circ$
50	$\pm 0,05^\circ$
63	$\pm 0,05^\circ$

Guide with bushings with ball recirculation - JLV

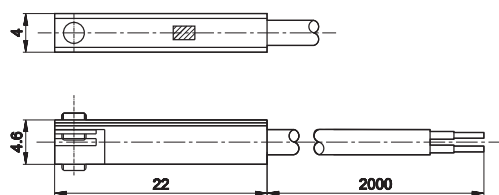
Ø	Precision θ
12	$\pm 0,06^\circ$
16	$\pm 0,06^\circ$
20	$\pm 0,03^\circ$
25	$\pm 0,05^\circ$
32	$\pm 0,03^\circ$
40	$\pm 0,08^\circ$
50	$\pm 0,06^\circ$
63	$\pm 0,06^\circ$

- The values are the deflection angle against the piston rod.
 - Exclusive factor of the guide rod's deflection.

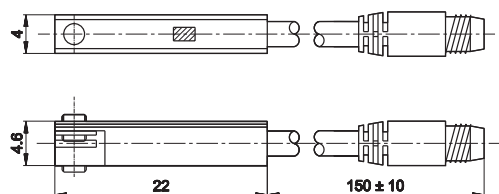
MAGNETIC SENSOR Series DF-R



DF-R 200 L02



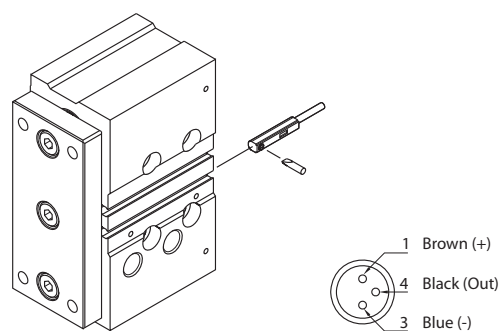
DF-R 200 M08



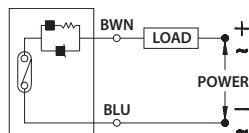
TECHNICAL CHARACTERISTICS

DF-R 200	
Type	Reed
Working voltage	5÷120 V DC/AC
Switching current	max 100 mA
Switching power	max 10 W
Shock resistance	30 G
Voltage drop	max 2,5 V
Cable number and section	2 x Ø2,8 (PVC)
Contact	normally open (NO)
Response time	max 1 ms
Temperature	-10 ÷ +70 °C
Cable length	2 m
State indicator	LED red colour
Protection class	IP 67 (NEMA 6)

Assembly scheme



Circuit



CODIFICATION KEY

DF-R	200	L02
1	2	3
1 Series	2 Type	3 Cable
DF-R	200 = Reed	L02 = 2 m M08 = connector M8

**UNIVER S.p.A.
Headquarter**

I - 20128 **Milano**
Via Eraclito, 31
Tel. +39 02 25298.1
Fax +39 02 2575254
e-mail: info@univer-group.com
www.univer-group.com

**UNIVER SERVICE S.r.l.
Headquarter**

I - 20128 **Milano**
Via Empedocle, 20
Tel. +39 02 25298.1
Fax +39 02 25298370
e-mail: univervservice@univervservice.it
www.univervservice.it

Filiale:

I - 10028 **Trofarello (TO)**
Via La Pira, 7
Tel. +39 011 6880311
Fax +39 011 6880300
e-mail: sales.to@univer-group.com

UNIVER CUNEO S.r.l.

12060 **Roreto di Cherasco (CN)**
Via Savigliano, 18
Tel. +39 0172 495790/38
Fax +39 0172 2495611

Unità operative:

LOMBARDIA

24060 **Castelli Calepio (BG)**
Via C. Curotti, 35/37
Tel. +39 030 7435420 Fax +39 030 733328
e-mail: castellicalepio@univervservice.it

22036 **Erba (CO)**

Viale Resegone, 24
Tel. +39 031 611069 Fax +39 031 611116
e-mail: erba@univervservice.it

22076 **Mozzate (CO)**

Via Varese, 116
Tel. +39 0331 821971 Fax +39 0331 823698
e-mail: mozzate@univervservice.it

EMILIA ROMAGNA

40024 **Castel San Pietro Terme (BO)**
Via degli Artigiani, 140
Tel. +39 051 6942014 Fax +39 051 6942093
e-mail: bologna@univervservice.it

MARCHE

61100 **Pesaro (PU)**
Piazzale Mario Coralloni, 19
Tel. +39 0721 202633 Fax +39 0721 202795
e-mail: pesaro@univervservice.it

PIEMONTE

28060 **San Pietro Mosezzo (NO)**
Via Giacomo Leopardi, 48
Tel. +39 0321 468309 Fax +39 0321 53556
e-mail: novara@univervservice.it

VENETO

35010 **Limena (PD)**
Via C. Battisti, 65/H
Tel. +39 049 8842289 Fax +39 049 8848532
e-mail: limena@univervservice.it

TOSCANA

50041 **Calenzano (FI)**
Via Giusti, 233/B
Tel. +39 055 8811349 Fax +39 055 8812382
e-mail: calenzano@univervservice.it

UNIVER Pty Ltd

AUSTRALIA - 3175 Victoria
Nicole Way Dandenong, 11
Tel. +61 3 97930377
Fax +61 3 97930399
e-mail: sales@univer.net.au

UNIVER do Brasil S/A

BRASIL - 83055-320
São José dos Pinhais - Paraná
Av. Rui Barbosa, 3005
Tel. +55 41 33824606
Fax +55 41 33824807
e-mail: univerbrasil@univer.com.br
www.univer.com.br

UNIVER OY

FINLAND - 15200 Lahti
Hirsimetsäntie, 9
Tel. +358 207 491400
Fax +358 207 491401
e-mail: sales@univer.fi
www.univer.fi

UNIVER FRANCE S.a.s.

FRANCE - 68000 Colmar
1, rue Denis Papin
Tel. +33 03 89210900
Fax +33 03 89216850
e-mail: info@univer-france.fr
www.univer-france.fr

UNIVER G.m.b.H.

GERMANY - D-53859 Niederkassel/Rheidt
Marktstraße, 114
Tel. +49 2208 90900
Fax +49 2208 909040
e-mail: info@univer-gmbh.de
www.univer-group.com

UNIVER S.L.

System Supplier Pneumatic
SPAIN - 08210 Barbera Del Valles
Barcelona - Ronda Industria, 26 - 28
Tel. +34 93 7297360
Fax +34 93 7297380
e-mail: univer@univerweb.com
www.univerweb.com

UNIVER SWEDEN AB

SWEDEN - 44361 Stenkullen
Hedeforsvägen, 2
Tel. +46 302 23060
Fax +46 302 22864
e-mail: info@univer.se
www.univer.se

UNIVER AG

SWITZERLAND - 6312 Steinhausen
Postfach - Sumpfstrasse, 26
Tel. +41 41 7417580
Fax +41 41 7417280
e-mail: mail@univer-ag.ch
www.univer-ag.ch

UNIVER

Manufacturing Company Ltd.

UNITED KINGDOM - Bradford
Station Road - West Yorkshire BD145F
Tel. +44 1274 725777
Fax +44 1274 725111
e-mail: enquiries@univer.co.uk
www.univer.co.uk

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