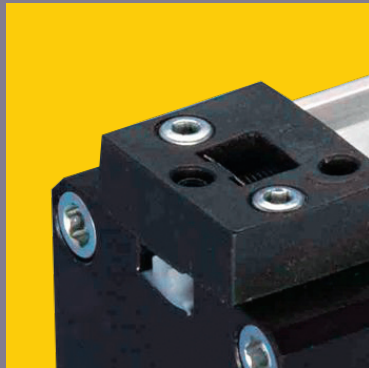
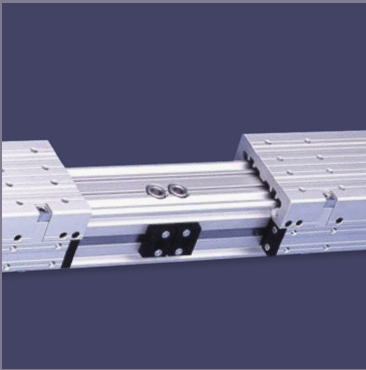
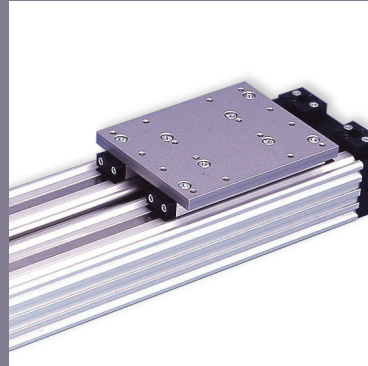
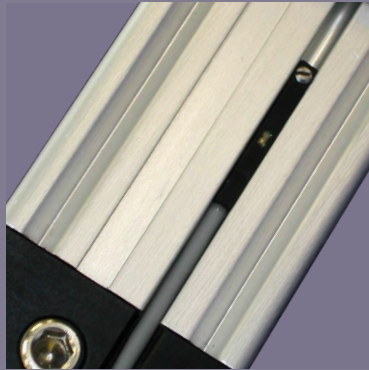




CPI AUTOMATION
SPECIALISTS IN FLUID POWER AND CONTROL



LANAMATIC Z-LINE RODLESS CYLINDERS





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WARRANTY STATEMENT

CPI Automation Limited acts as both a distributor and manufacturer of Fluid Power components and equipment. **All resale items are sold in accordance with the Supplier's standard warranty clause.** This warranty comprises the sole and entire warranty pertaining to the items sold hereunder. CPI Automation Ltd. makes no other warranty, guarantee, or representation of any kind whatsoever. All other warranties, including but not limited to, merchantability and fitness for purpose, whether express, implied, or arising by operation of law, trade usage, or course of dealing are hereby disclaimed. Where a component is purchased from a vendor as part of a higher level assembly offered for sale, CPI Automation Ltd. warrants such products for a period of 12 months* from date of shipment from our factory and in accordance with the above warranty statement. All such products will carry **only** the CPI Automation Ltd. name tag.

LIMITATION OF REMEDY

This warranty is limited to the seller's option to replace or rebuild any component which should fail to operate properly. **Used equipment may not be returned for credit.** All components which fail must be returned to the Seller freight prepaid while within the warranty period. Repaired or replaced material will be returned to the customer, freight prepaid. No material will be accepted without first receiving a return authorization number from the Customer Service Dept. This reference number must be clearly indicated on package and accompanying documentation. All material returned to the end user will be accompanied by an inspection certificate indicating cause of failure and remedy. Should cause of failure not be covered by warranty in the case of contamination, corrosion, abuse etc., the cost of repairs will be conveyed to the end user for written approval prior to commencing with such repairs. All repairs conducted per the above will carry the balance of initial 12 month warranty from date of original shipment or 90 Days from date of repair, whichever is longer.

DISCLAIMER OF GUARANTEE

No claims for labour, material, time, damage, or transportation are allowable, nor will any product be rebuilt or replaced under the above warranty which has been damaged by the purchaser not in the normal course of its use and maintenance during the warranty period. The guarantee does not apply to loss or damage caused by fire, theft, riot, explosion, labour dispute, act of God, or other causes beyond the control of CPI Automation Limited. In no event shall CPI automation Ltd. be liable for remote, special or consequential damages under this guarantee, nor under any implied warranties, including the implied warranty of merchantability.

FEATURES AND BENEFITS

Space Savings

- Z-line rodless cylinders provide a significant space savings over conventional cylinders since the driving element is parallel to the load.

Load Carrying Ability

- With integral carriages and wear guides, Z-line rodless cylinders provide the ability to mount loads directly on the actuator thereby significantly reducing design time and cost.

Mechanical Carriage Connection

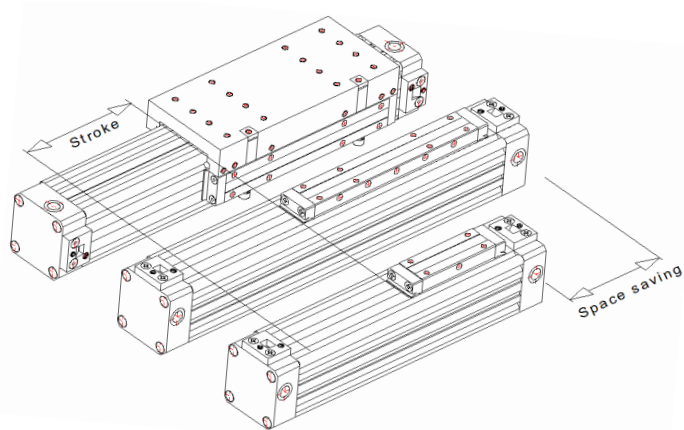
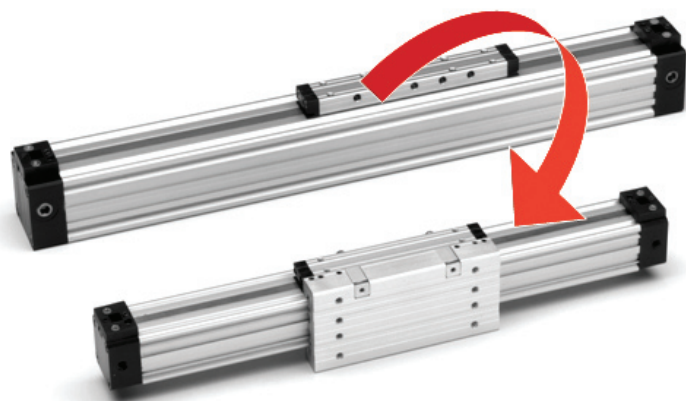
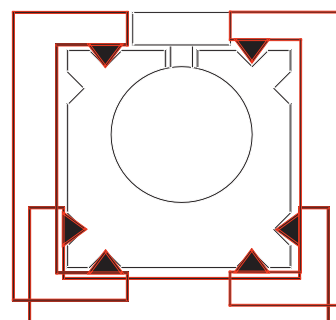
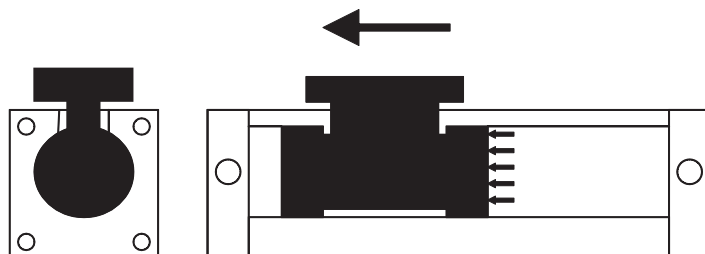
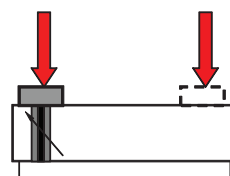
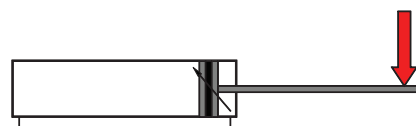
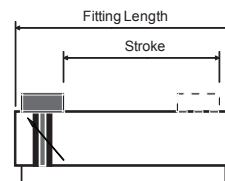
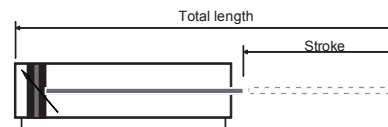
- Unlike magnetically coupled rodless cylinders, Z-line cylinders transmit power directly from the pneumatic piston to the carriage via a slotted tube connection.

Immune to Pressure Distortion

- Whereas most competitive cylinders have carriages that bridge the slot in the tube creating potential binding at higher pressures as the tube slot expands, Z-line cylinders transmit power via a floating connection to carriers on one or more of the fixed sides of the tube profile.

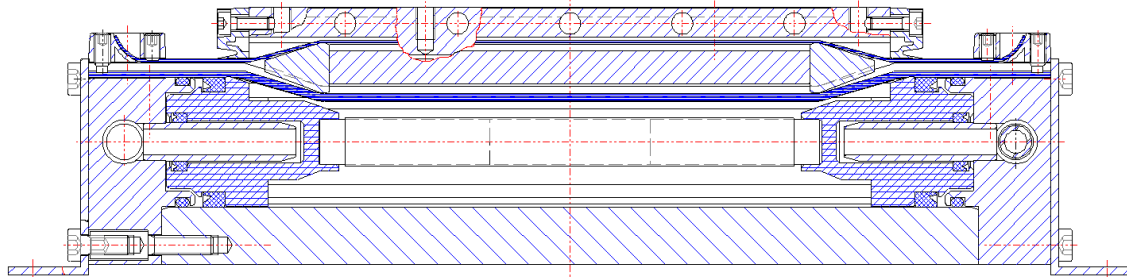
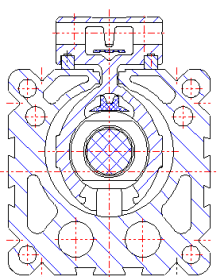
Compact or Standard - Fully Modular

- The Z-line cylinder family offers the unique option of a base carriage in either compact or standard length based on the load requirements of the application.
- For increased load capacity various levels of load guidance can be factory ordered or field retrofitted.
- Refer to page 17 for other variants and possibilities.





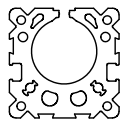
CONSTRUCTION



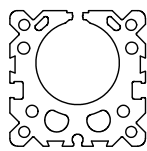
CYLINDER EXTRUSION PROFILES



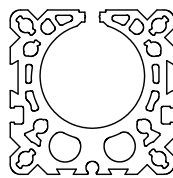
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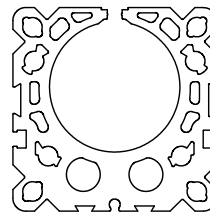
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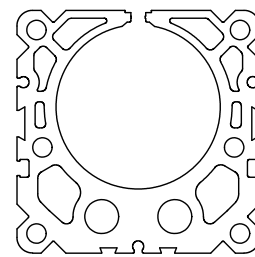
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40



50

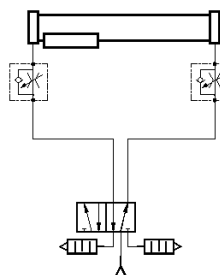


63

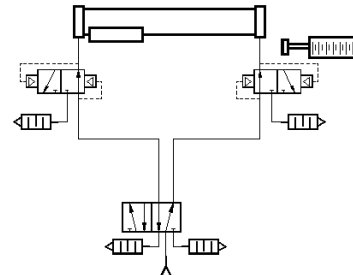
CONSTRUCTION	Rodless cylinder with direct power transmission through a slotted tube onto the yoke
STROKE	Up to 6000mm (Higher strokes available upon request)
PORT POSITION	Three porting options are provided as standard. (Plugs are provided for any un-used ports): 1. Side ports on each end cap (Both sides) 2. Bottom port on each end cap 3. Bi-directional porting on one end cap
OPERATION	Double acting with adjustable end-of-travel cushioning
OPERATING PRESSURE	2 to 8 bar (29 to 110 PSI)
OPERATING TEMPERATURE	-20°C to +80°C
MEDIUM	Filtered and lubricated compressed air
MATERIAL	High-strength aluminium alloy and oil resistant plastics and elastomers.
CUSHIONING	Adjustable pin-type cushioning standard.
PISTON MAGNET	Standard.

Cylinder	Weight Zero-stroke to add with Weight/stroke (kg)					Weight/stroke For 1000 mm
	ZS	ZK	ZF	ZFF	ZFK	
18	0.3	0.2	0.4	0.6	0.3	1.5 kg (2.5 kg)
25	0.6	0.4	0.9	1.1	0.6	2.6 kg (4.0 kg)
32	1.1	0.7	1.5	2.2	1.2	3.6 kg (5.8 kg)
40	1.8	1.2	2.8	3.8	2.0	4.8 kg (8.3 kg)
50	3.2	2.0	4.9	6.4	3.2	7.4 kg (12.1 kg)
63	5.6	3.2	8.0	10.4	6.4	10.0kg (15.5 kg)

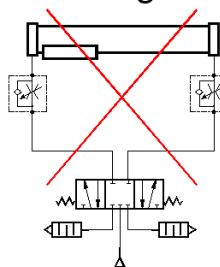
Config #1



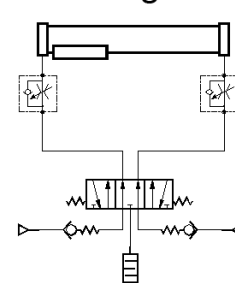
Config #2



Config #3



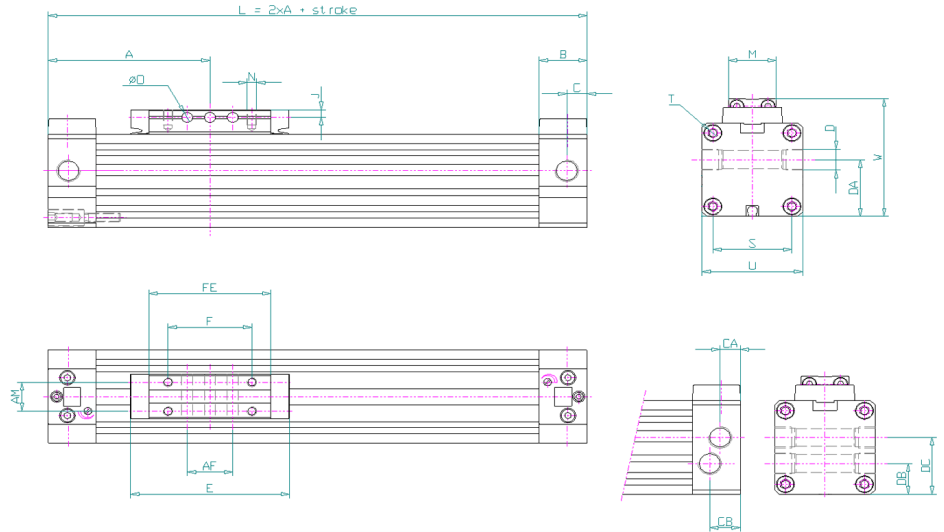
Config #4



Control of Rodless Cylinders

- CONFIGURATION 1:** For normal operation, speed controls arranged in an “meter out” fashion are recommended.
- CONFIGURATION 2:** For higher speed operation, quick exhaust valves fitted to the cylinder ports can be used as this reduces the back pressure in the cylinder; however, end of stroke shock absorbers should be considered.
- CONFIGURATION 3 (NOT Recommended):** Closed center valves are **NOT** recommended for use with rodless cylinders to achieve mid position locking due to the allowable internal leakage of these devices.
- CONFIGURATION 4:** This is the recommended circuit arrangement for positive mid locking.

ZK CYLINDER



ZK Dimension	Ø 18	Ø 25	Ø 32	Ø 40	Ø 50	Ø 63
A	57.5	67.5	77.5	95	105	125
AF	15	19	35	50	46	70
AM	10	13	16	22	29	40
B	16.5	20	20	23	23	29
C	6.5	8.5	8.5	13	13	13
CA	---	7	7	9.5	9.5	11
CB	---	13	13	14.5	14.5	18.5
D*	#10-32	#10-32	1/8 NPT	1/4 NPT	1/4 NPT	3/8 NPT
DA	17.5	25.5	32	37.5	47.5	59.5
DB	---	14	17.5	20	26	30
DC	---	28	34.5	42	52	62
E	58	66	86	110	130	153
F	30	35	55	70	70	100
FE	45	51	71	90	110	133
J	3	3.5	4.5	5	6.5	8
M	15.5	20	25	33	42	54
N	M3 x 6	M4 x 7	M5 x 9	M6 x 10	M8 x 12.5	M8 x 15
Ø O	3.5	4.5	5.5	7	7	9
□ S	23.5	33	41	51	63	78
T	M3 x 7	M4 x 9	M5 x 10	M6 x 12	M8 x 12	M8 x 12
□ U	30	42	52	63	78	93
W	39	53	65	79	96	113.5

Example order: ZK Ø 25 Standard cylinder with 100mm stroke.

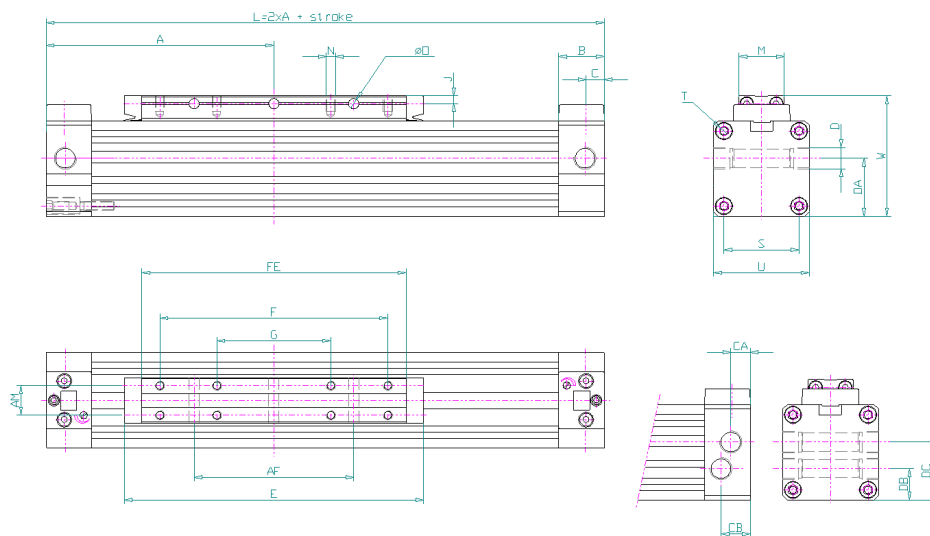
Order number: 2250-0000-0100

* **Cylinder Porting:** Three porting options are provided as standard. (Plugs are provided for any un-used ports):

1. Side ports on each end cap (Both sides)
2. Bottom port on each end cap
3. Bi-directional porting on one end cap



ZS CYLINDER



ZS Dimension	Ø 18	Ø 25	Ø 32	Ø 40	Ø 50	Ø 63
A	80	100	120	150	180	215
AF	50	70	100	140	180	230
AM	10	13	16	22	29	40
B	16.5	20	20	23	23	29
C	6.5	8.5	8.5	13	13	13
CA	---	7	7	11	12	12,5
CB	---	13	13	14.5	14	15,5
D*	#10-32	1/8 NPT	1/8 NPT	1/4 NPT	1/4 NPT	3/8 NPT
DA	15.5	25.5	32	37.5	47.5	59.5
DB	---	14	16	18.5	22,5	24,5
DC	---	28	34.5	41	47.5	59.5
E	103	131	171	220	280	333
F	75	100	140	180	220	280
FE	90	116	156	200	260	313
G	---	50	70	90	110	140
J	3	3.5	4.5	5	6.5	8
M	15.5	20	25	33	42	54
N	M3 x 6	M4 x 7	M5 x 9	M6 x 10	M8 x 12.5	M8 x 15
Ø O	3.5	4.5	5.5	7	7	9
□ S	23.5	33	41	51	63	78
T	M3 x 7	M4 x 9	M5 x 10	M6 x 12	M8 x 12	M8 x 12
□ U	30	42	52	63	78	93
W	39	53	65	79	96	113.5

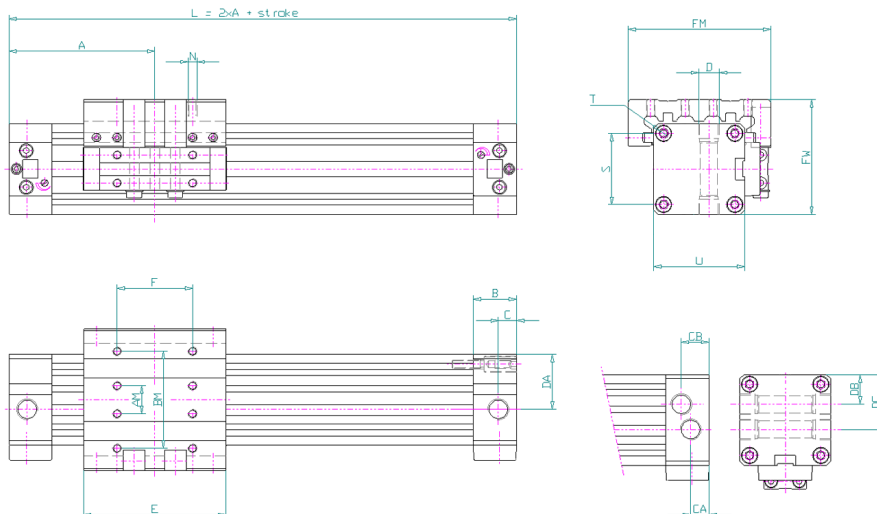
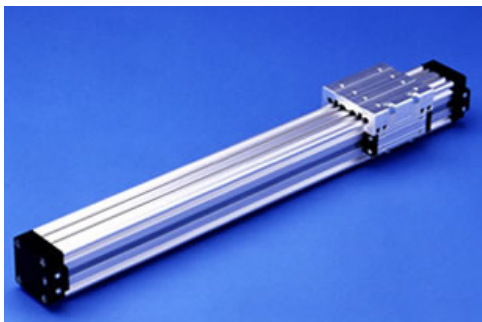
Example order: ZS Ø 25 Standard cylinder with 100mm stroke.

Order number: 1250-0000-0100

*** Cylinder Porting:** Three porting options are provided as standard. (Plugs are provided for any un-used ports):

1. Side ports on each end cap (Both sides)
2. Bottom port on each end cap
3. Bi-directional porting on one end cap

ZFK CYLINDER



ZFK Dimension	Ø 18	Ø 25	Ø 32	Ø 40	Ø 50	Ø 63
A	57.5	67.5	77.5	95	105	125
AM	10	13	16	22	29	40
B	16.5	20	20	24	24	30
BM	35	45	55	70	85	105
C	6.5	8.5	8.5	13	13	13
CA	---	7	7	9.5	9.5	11
CB	---	13	13	14.5	14.5	18.5
D*	#10-32	1/8 NPT	1/8 NPT	1/4 NPT	1/4 NPT	3/8 NPT
DA	17.5	25.5	32	37.5	47.5	59.5
DB	---	14	17.5	20	26	30
DC	---	28	34.5	42	52	62
E	58	66	86	110	130	153
F	30	35	55	70	70	100
FM	50	66	80	97	116	136
FW	39	53	65	79	96	113.5
N	M4 x 7.5	M4 x 8	M5 x 10	M6 x 12	M8 x 16	M8 x 16
Ø S	23.5	33	41	51	63	78
T	M3 x 7	M4 x 9	M5 x 10	M6 x 12	M8 x 12	M8 x 12
□U	30	42	52	63	78	93

Example order: ZFK Ø 25 Guiding cylinder with 100mm stroke.

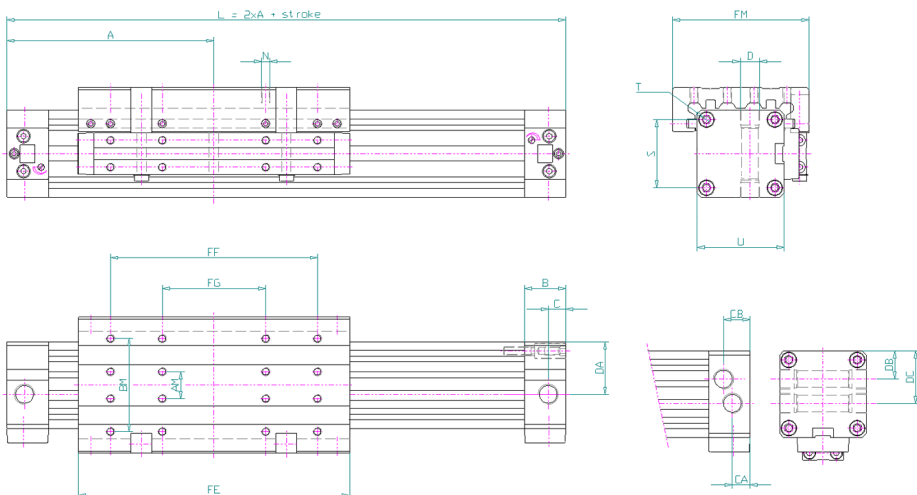
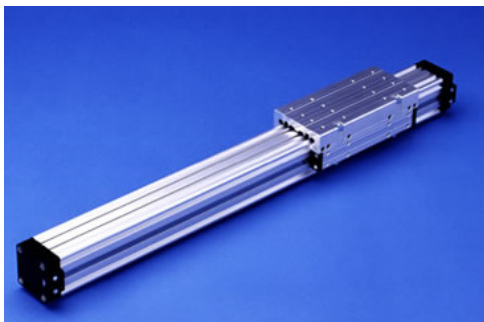
Order number: 3252-0000-0100

* **Cylinder Porting:** Three porting options are provided as standard. (Plugs are provided for any un-used ports):

1. Side ports on each end cap (Both sides)
2. Bottom port on each end cap
3. Bi-directional porting on one end cap



ZF CYLINDER



ZF Dimension	Ø 18	Ø 25	Ø 32	Ø 40	Ø 50	Ø 63
A	80	100	120	150	180	215
AM	10	13	16	22	29	40
B	16.5	20	20	24	24	30
BM	35	45	55	70	85	105
C	6.5	8.5	8.5	13	13	13
CA	---	7	7	9.5	9.5	11
CB	---	13	13	14.5	14.5	18.5
D*	#10-32	1/8 NPT	1/8 NPT	1/4 NPT	1/4 NPT	3/8 NPT
DA	17.5	25.5	32	37.5	47.5	59.5
DB	---	14	17.5	20	26	30
DC	---	28	34.5	42	52	62
FE	103	131	171	220	280	333
FF	75	100	140	180	220	280
FG	---	50	70	90	110	140
FM	50	66	80	97	116	136
FW	39	53	65	79	96	113.5
N	M4 x 7.5	M4 x 8	M5 x 10	M6 x 12	M8 x 16	M8 x 16
Ø S	23.5	33	41	51	63	78
T	M3 x 7	M4 x 9	M5 x 10	M6 x 12	M8 x 12	M8 x 12
□U	30	42	52	63	78	93

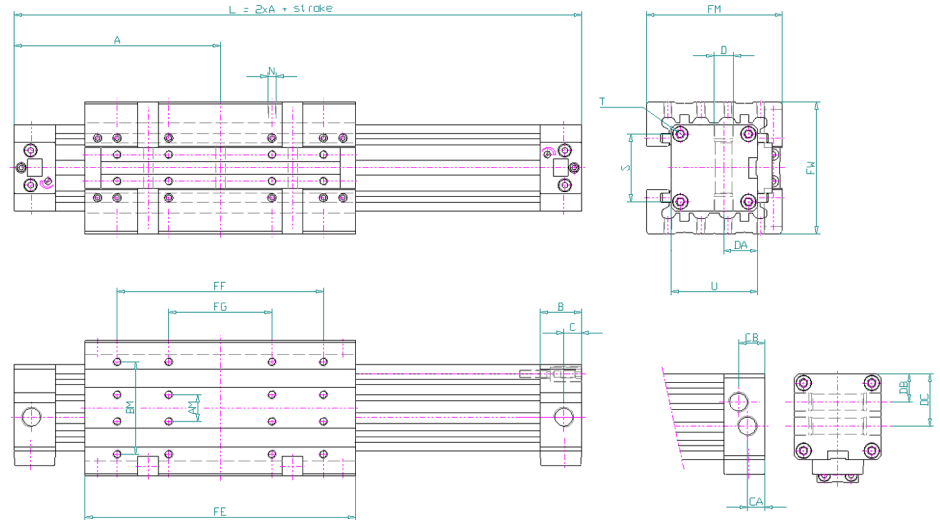
Example order: ZF Ø 25 Short cylinder with 100mm stroke.

Order number: 3250-0000-0100

* **Cylinder Porting:** Three porting options are provided as standard. (Plugs are provided for any un-used ports):

1. Side ports on each end cap (Both sides)
2. Bottom port on each end cap
3. Bi-directional porting on one end cap

ZFF CYLINDER



ZFF Dimension	Ø 18	Ø 25	Ø 32	Ø 40	Ø 50	Ø 63
A	80	100	120	150	180	215
AM	10	13	16	22	29	40
B	16.5	20	20	24	24	30
BM	35	45	55	70	85	105
C	6.5	8.5	8.5	13	13	13
CA	---	7	7	9.5	9.5	11
CB	---	13	13	14.5	14.5	18.5
D*	#10-32	1/8 NPT	1/8 NPT	1/4 NPT	1/4 NPT	3/8 NPT
DA	17.5	25.5	32	37.5	47.5	59.5
DB	---	14	17.5	20	26	30
DC	---	28	34.5	42	52	62
FE	103	131	171	220	280	333
FF	75	100	140	180	220	280
FG	--	50	70	90	110	140
FM	50	66	80	97	116	136
FW	48	64	78	95	114	134
N	M4 x 7.5	M4 x 8	M5 x 10	M6 x 12	M8 x 16	M8 x 16
Ø S	23.5	33	41	51	63	78
T	M3 x 7	M4 x 9	M5 x 10	M6 x 12	M8 x 12	M8 x 12
□U	30	42	52	63	78	93

Example order: ZFF Ø 25 Guiding cylinder with 100mm stroke.

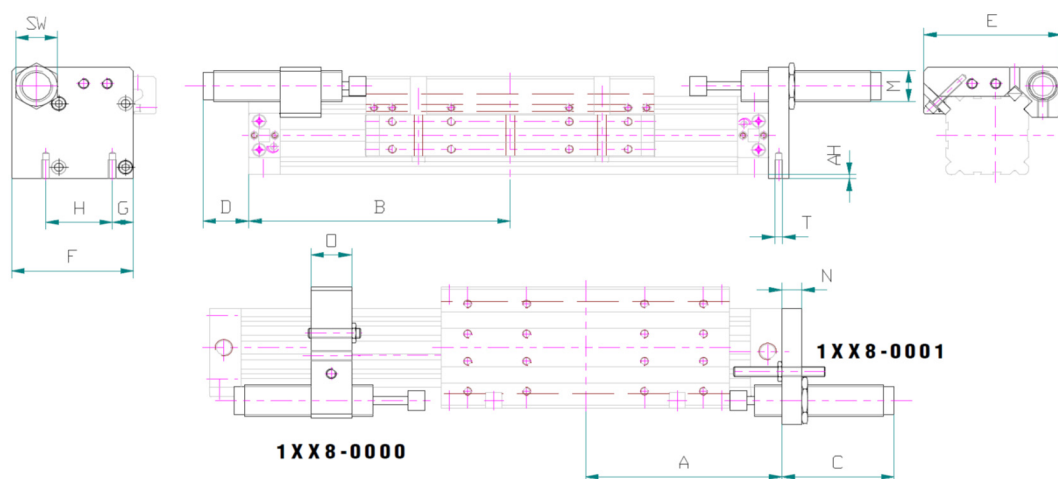
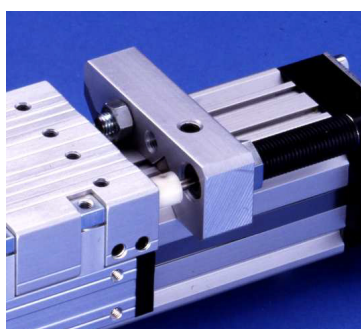
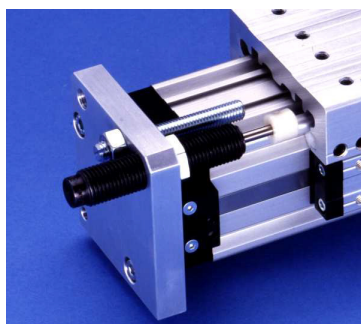
Order number: 3251-0000-0100

*** Cylinder Porting:** Three porting options are provided as standard. (Plugs are provided for any un-used ports):

1. Side ports on each end cap (Both sides)
2. Bottom port on each end cap
3. Bi-directional porting on one end cap



SHOCK ABSORBER OPTIONS (AS)



AS Dimension	Ø 18	Ø 25	Ø 32	Ø 40	Ø 50	Ø 63
A ZF/AFK	80/57.5	100/67.5	120/77.5	150/95	180/105	215/125
AH	2	2	3	3	3	4.5
B ZF/ZFK	113/90.5	117.5/85	135.5/90	165/110	195/140	250/160
C	32	37	70	65	80	80
D	Max. 25	Max. 40	Max. 30	Max. 50	Max. 65	65
E	57	72	84	105	126	140
F	43.5	57	70	93	102	118.5
G	8	12.5	14.5	16	22.5	20
H	23.5	33	41	51	63	78
M	M10X1	M14X1.5	M14X1.5	M25X1.5	M25X1.5	M25X1.5
N	8	10	12	15	15	15
O	15	20	20	30	30	40
SW	13	17	17	32	32	32
T	M3X10	M4X10	M5X12	M6X15	M8X20	M8X20

Example order: AS25 Stop adjustment shiftable for ZF25 or ZFK25 (without shock absorbers)

Order number: 1258-0000: AS25 Stop adjustment shiftable for ZF25 or ZFK25 (without shock absorbers)

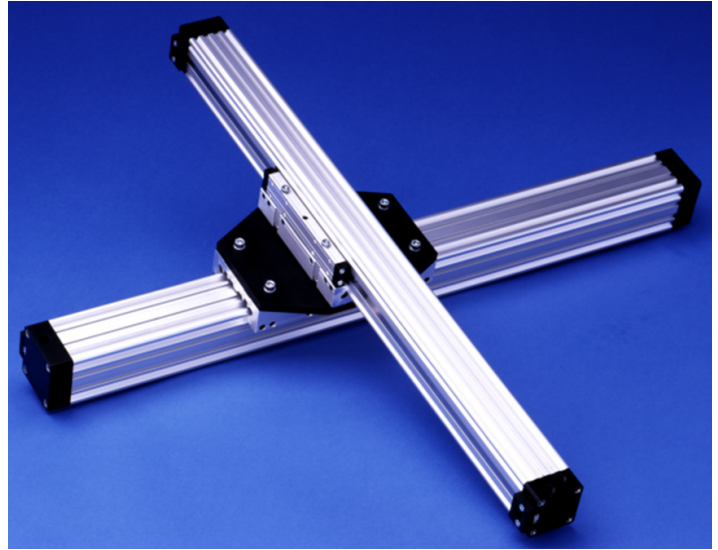
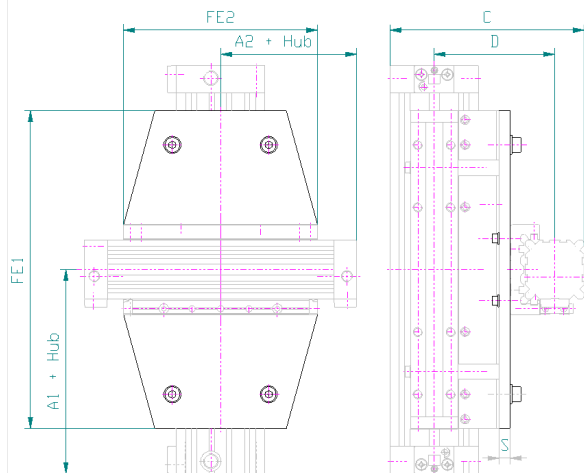
1258-0001: AS25 Stop adjustment fixed for ZF25 or ZFK25 (without shock absorbers)

Recommended Shock Absorber Options

Bore	Ace		Enidine		Enertrils	
	Adjustable	Fixed	Adjustable	Fixed	Adjustable	Fixed
18	-	MC25M	OEM-0.1M	PMX10	-	SM-25-M
25	MA150M	MC150M	OEM-.25M	SPM25	-	SNALD-150-M
32	MA150M	MC150M	OEM-.25M	SPM25	-	SNALD-150-M
40	MA600M	MC600M	OEM-1.0MF	PM100	SALD-3/8x1-M	SNALD-600-M
50	MA600M	MC600M	OEM-1.0MF	PM100	SALD-3/8x1-M	SNALD-600-M
63	MA600M	MC600M	OEM-1.0MF	PM100	SALD-3/8x1-M	SNALD-600-M

Note: Refer to shock absorber supplier literature for details of shock absorber performance.

XY AXIS ASSEMBLIES (KT)



Combination	Kit Number	A1	A2	C	D	FE1	FE2	S
18 : 18	1186-0000	80	80	84	54	103	103	6
25 : 25	1256-0000	100	100	114	72	131	131	8
32 : 32	1326-0000	120	120	140	88	171	171	10
40 : 40	1406-0000	150	150	168	105	220	220	10
50 : 50	1506-0000	180	180	204	126	280	280	12
63 : 63	1636-0000	215	215	239	146	333	333	12

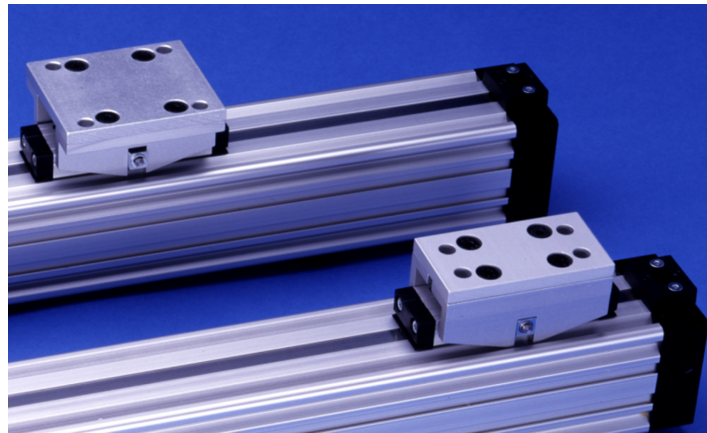
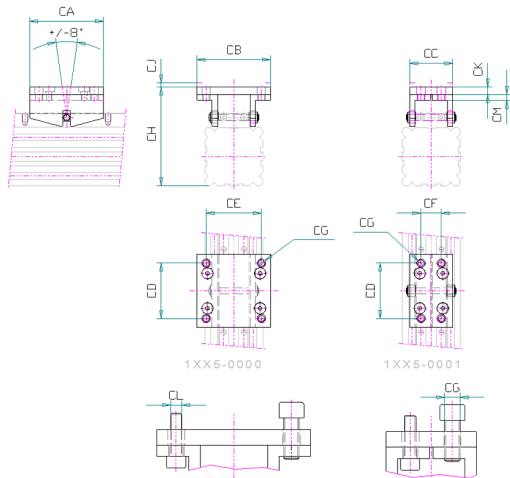
Combination	Kit Number	A1	A2	C	D	FE1	FE2	S
25 : 18	1256-0001	100	80	100	64	131	103	8
32 : 25	1326-0001	120	100	128	81	171	131	10
40 : 32	1406-0001	150	120	154	96.5	220	171	10
50 : 40	1506-0001	180	150	187	116.5	280	220	12
63 : 50	1506-0001	215	180	221.5	136	333	280	12

Combination	Kit Number	A1	A2	C	D	FE1	FE2	S
32 : 18	1326-0002	120	80	112	71	171	103	8
40 : 25	1406-0002	150	100	142	89.5	220	131	10
50 : 32	1506-0002	180	120	171	106	280	171	10
63 : 40	1636-0002	215	150	204.5	126.5	333	220	12

Type KT Cross Support Kits connect two style ZF Cylinders in an X-Y arrangement. Cylinders purchased separately.



SWINGING BRIDGE MOUNT (PB)

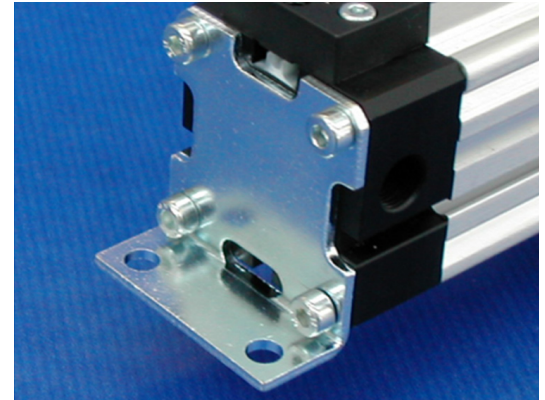
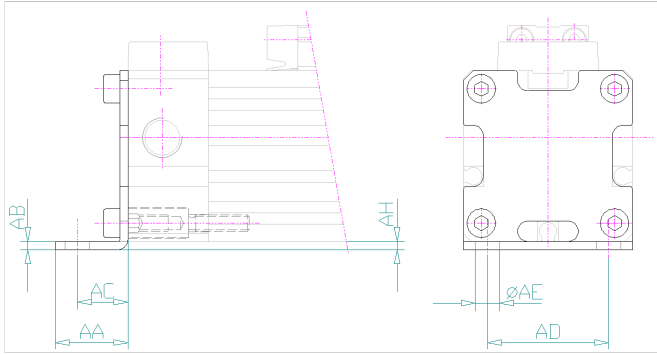


PB Dimension	Ø 18	Ø 25	Ø 32	Ø 40	Ø 50	Ø 63
CA	50	60	70	80	90	100
CB	41.5	50	60	80	95	120
CC	25.5	30	37	47	56	73
CD	30	40	50	60	70	80
CE	34	38	48	60	70	90
CF	9	14	16	22	30	40
CG	M5	M5	M6	M8	M8	M10
CH	54	70	86	107	123	145.5
CJ	2.5	3	3.5	4.5	4.5	5
CK	4	4	6	8	8	8
CM	4	4	6	8	8	8
CL	M4	M4	M5	M6	M6	M8
Kit No.	1185-0000	1255-0000	1325-0000	1405-0000	1505-0000	1635-0000
	1185-0001	1255-0001	1325-0001	1405-0001	1505-0001	1635-0001

The swinging bridge can be used when additional guiding is provided external to the rodless cylinder. Swinging bridges may be used with type ZS or ZK cylinders. The swinging bridge transfers the power to the guiding element without any side loading. Two styles are offered with either a small or large flange pattern.

MOUNT ACCESSORIES

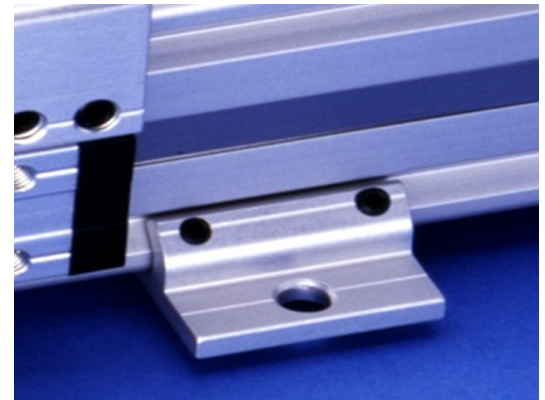
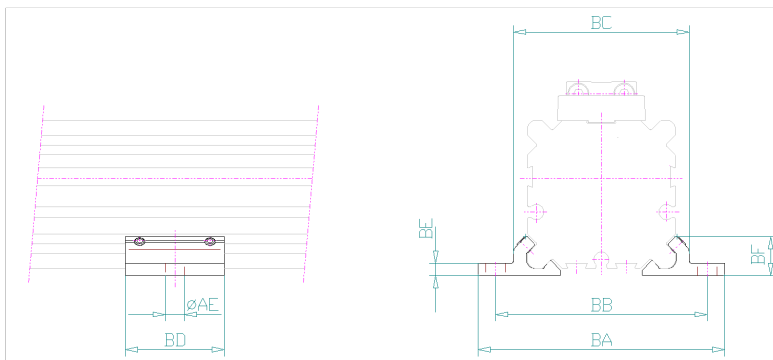
FB Mounting Bracket



FB Dimensions	Ø 18	Ø 25	Ø 32	Ø 40	Ø 50	Ø 63
AA	15	18	20	30	28	30
AB	2	2	2.5	3	3	3
AC	10	12.5	13.5	17.5	20	21
AD	20	30	40	50	60	75
AE	Ø 6	Ø 6	Ø 7	Ø 9	Ø 9	Ø 11
AH	2	2	3	3.5	3	4.5
Kit No.	1182-0001	1252-0001	1322-0001	1402-0001	1502-0001	1632-0001

The Kit Number shown includes 2 mounting brackets and 8 screws.

MB Middle Support



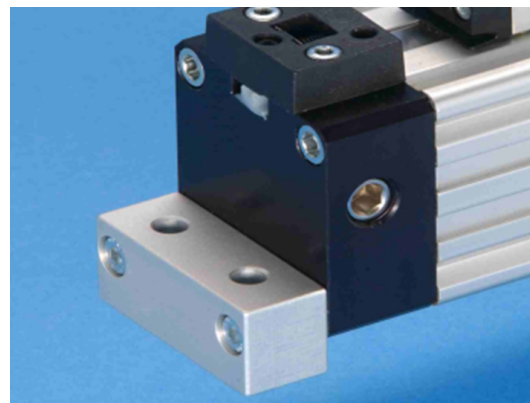
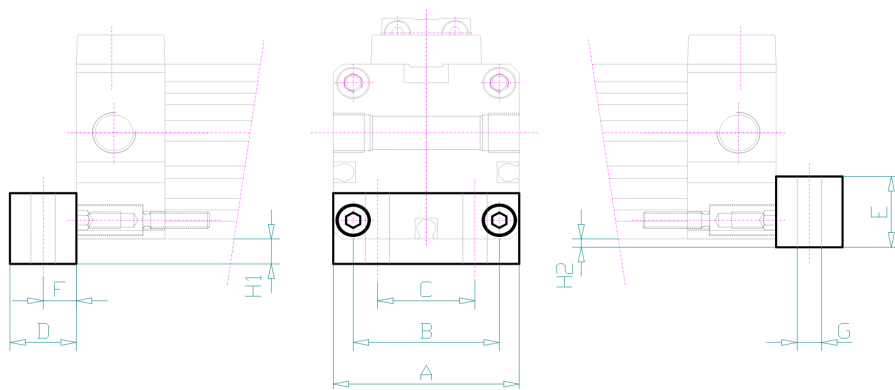
MB Dimensions	Ø 18	Ø 25	Ø 32	Ø 40	Ø 50	Ø 63
AE	Ø 6	Ø 6	Ø 7	Ø 9	Ø 9	Ø 11
AH	2	2	3	3	3	4.5
BA	56	70	85	105	122	144
BB	46	60	73	90	106	125
BC	36.5	50	61.5	75	91	107
BD	23	28	33	38	43	48
BE	2.5	3.5	4	4.5	5	6
BF	8.25	11	13.8	16	19	22
Kit No.	1183-0001	1253-0001	1323-0001	1403-0001	1503-0001	1633-0001

The Kit No. given includes 2 middle supports with set screws.

Refer to page 15 for deflection charts.



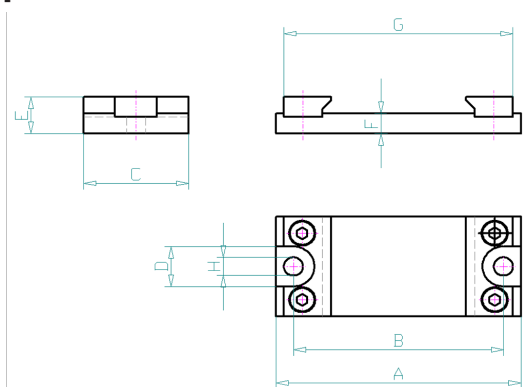
FB Mount Block



FB Dimensions	Ø 18	Ø 25	Ø 32	Ø 40	Ø 50	Ø 63
A	30	42	52	63	78	93
B	23.5	33	41	51	63	78
C	14	22	23.5	30	39	52
D	10	15	15	15	16	20
E	14.5	17	20	23	26	27.5
F	5	7.5	7.5	7.5	8	10
G	Ø 4.5	Ø 5.5	Ø 7	Ø 9	Ø 9	Ø 11
H1	6	6	6	8	8	8
H2	2	2	3	3	3	4.5
Kit No.	M3 x 14	M4 x 20	M5 x 20	M6 x 20	M8 x 20	M8 x 20
	1182-0005	1252-0005	1322-0005	1402-0005	1502-0005	1632-0005

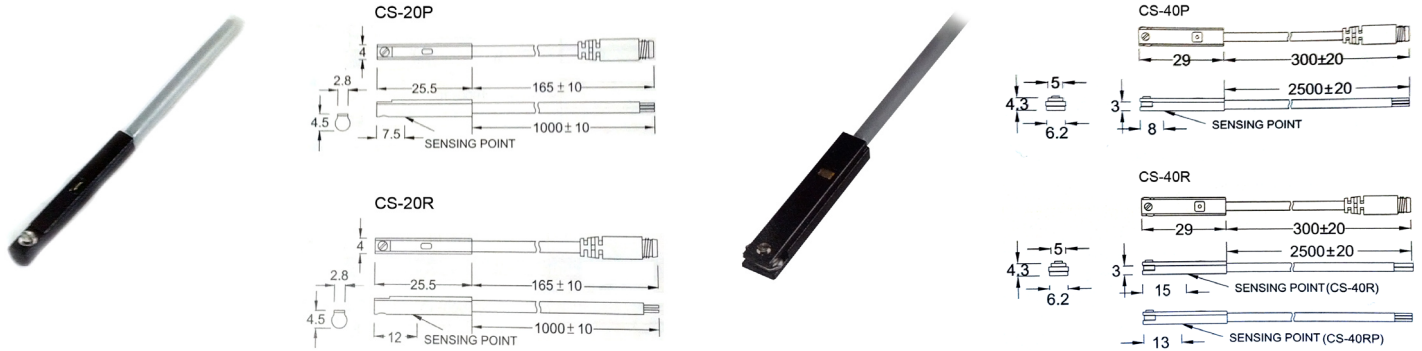
The Kit No. given includes 2 mounting blocks and 4 screws of size noted.

SB Support Block



SB Dimensions	Ø 18	Ø 25	Ø 32	Ø 40	Ø 50	Ø 63
A	56	70	85	105	122	144
B	46	60	73	90.5	105	125
C	30	30	40	40	40	50
D	12	12	12.5	16	16	19
E	11	13	15	18	20.5	21.5
F	6	6	6	8	8	8
G	50.6	65.5	77.5	90.5	107.5	122.5
H	Ø 5.5	Ø 5.5	Ø 6.6	Ø 9	Ø 9	Ø 11
Kit No.	1183-0002	1253-0002	1323-0002	1403-0002	1503-0002	1633-0002

SWITCHES AND CABLES



Extrusion profiles 32, 40, 50, and 63 are furnished with both 4.5mm circular and 6.7mm rectangular slots to accommodate both CS-20 and CS-40 sensors. Profile 25 is furnished with only rectangular slots. Profile 18 does not provision for sensor slot mounting. Cylinders are supplied with magnetic pistons as standard.

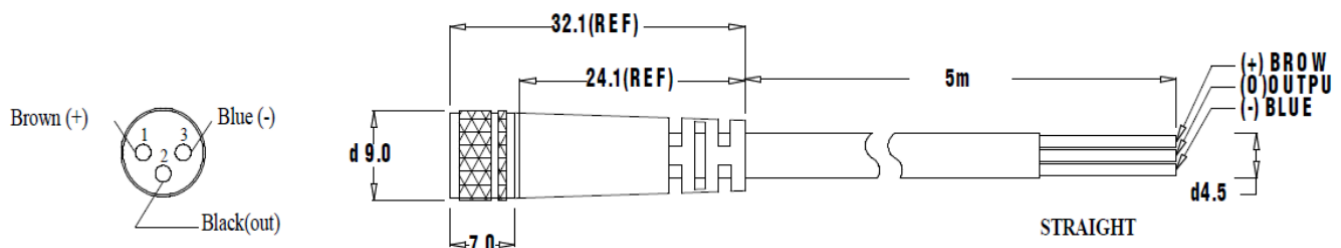
Part Number	CS-20R-QD	CS-20P-QD	CS-40R-QD	CS-40P-QD
Diagram				
Wiring Method	2-Wire Type	3-Wire Type	2-Wire Type	3-Wire Type
Switching Logic	SPST, Normally Open	Solid State Output, Normally Open	SPST, Normally Open	Solid State Output, Normally Open
Sensor Type	Reed Switch	PNP Current Sourcing	Reed Switch	PNP Current Sourcing
Operating Voltage	5~120 V DC/AC	5~30 V DC	5~120 V DC/AC	10~30 V DC
Switching Current	50 mA max.	50 mA max.	100 mA max.	100 mA max.
Contact Rating	6 W max.	1.5 W max.	10 W max.	3 W max.
Current Consumption	-	15 mA @ 24 V DC max.	-	8 mA @ 24 V DC max.
Voltage Drop	2.5 V max.	1.5 V @ 25 mA max.	3.5 V max.	1.5 V
Indicator	Red LED	Green LED	Red LED	Yellow LED
Operating Frequency	200 Hz	1000 Hz	200 Hz	1000 Hz
Magnet Requirement (Note 1)	40 Gauss Parallel	40 Gauss Parallel	50 Gauss Parallel	45 Gauss Parallel
Temperature Range	-10~70 °C (+14~158 °F)	-10~70 °C (+14~158 °F)	-10~70 °C (+14~158 °F)	-10~70 °C (+14~158 °F)
Enclosure Classification	IEC 529 IP 67 (NEMA 6)	IEC 529 IP 67 (NEMA 6)	IEC 529 IP 67 (NEMA 6)	IEC 529 IP 67 (NEMA 6)
Protection Circuit (Note 2)	1	3, 4	1	2, 3, 4

WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent damage to sensor will occur.

NOTE: 1. Measuring standard target: 15.5X8X5t (Anisotropy rubber magnet). 2. 1=None / 2=Short Circuit / 3=Power Source Reverse Polarity / 4=Surge Suppression

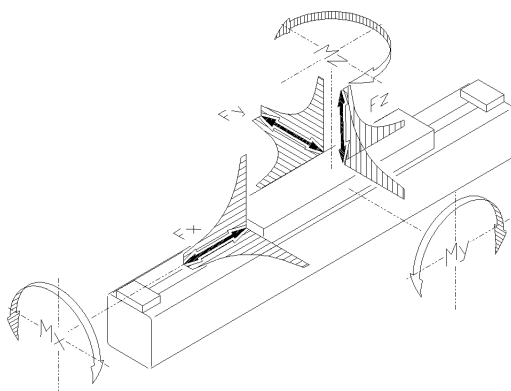
Female Connector M8X1

	Female Conenctor 2 m	Female Connector 5 m
Part Number	M83R-PUR-2M	M83R-PUR-5M
Cable Type	PVC	PVC
Electrical Rating	120 V DC/AC, 3A Max.	120 V DC/AC, 3A Max.
Protection Class	IP 67 (NEMA 6)	IP 67 (NEMA 6)
Operating Temp.	-10 °C to +60 °C	-10 °C to +60 °C
Cable Length	2m (PVC)	5m (PVC)





LOAD RATINGS AND DEFLECTIONS



All data pertaining to forces and torque limitations and capabilities are with reference to a speed of $v < 0.35$ m/s. Keeping cylinders within the indicated operational limits ensures maximum service life, minimum noise and optimal operating results. Higher speeds reduce the admissible forces.

$$\text{Force Balance: } \Sigma F = F_{zul} = \sqrt{F_x^2 + F_y^2 + F_z^2}$$

Common Conversions		
To Convert	Into	Multiply By
Bar	PSI	14.504
KiloPascals	PSI	0.1450
Newtons	Pounds	0.2248
Newton Meters	Inch Pounds	8.8507
Kilograms	Pounds	2.2046

ZS STANDARD CYLINDER

Piston Ø	$v^{\max} \leq 0.35$ m/s			F_{zul} at v			Torque		
	F_x (N) at	F_y (N) at	F_z (N) at	F_{zul} (N) at	F_{zul} (N) at	F_{zul} (N) at	M_x (Nm)	MX (Nm)	MX (Nm)
	6 bar			0.75 m/s	1 m/s	1.5 m/s	F_y/F_z	F_x/F_z	F_x/F_y
18	140	80	300	80	40	20	1	3	3
25	270	110	480	155	90	40	2	13	13
32	440	165	650	280	155	70	3.5	25	25
40	680	225	800	500	290	125	5.5	40	40
50	1060	325	1060	790	420	195	10	65	65
63	1680	435	1680	1500	850	370	16	100	100

ZK SHORT CYLINDER

Piston Ø	$v^{\max} \leq 0.35$ m/s			F_{zul} at v			Torque		
	F_x (N) at	F_y (N) at	F_z (N) at	F_{zul} (N) at	F_{zul} (N) at	F_{zul} (N) at	M_x (Nm)	MX (Nm)	MX (Nm)
	6 bar			0.75 m/s	1 m/s	1.5 m/s	F_y/F_z	F_x/F_z	F_x/F_y
18	140	40	140	40	25	10	0.4	1.7	1.7
25	270	55	230	90	50	25	0.7	2.7	2.7
32	440	70	320	200	110	45	1.0	5.0	5.0
40	680	100	400	420	240	110	2.0	8.5	8.5
50	1060	140	480	750	440	190	3.5	13.0	13.0
63	1680	180	590	1500	850	380	5.0	18.0	18.0

ZF GUIDING CYLINDER

Piston Ø	$v^{\max} \leq 0.35$ m/s			F_{zul} at v			Torque		
	F_x (N) at	F_y (N) at	F_z (N) at	F_{zul} (N) at	F_{zul} (N) at	F_{zul} (N) at	M_x (Nm)	MX (Nm)	MX (Nm)
	6 bar			0.75 m/s	1 m/s	1.5 m/s	F_y/F_z	F_x/F_z	F_x/F_y
18	140	370	370	100	58	26	3.5	6	6
25	270	800	800	280	160	65	10	20	20
32	440	1200	1200	510	300	140	25	45	45
40	680	1600	1600	1000	550	250	40	75	75
50	1060	2100	2100	1500	850	380	80	150	150
63	1680	2800	2800	2500	1400	610	110	250	250

ZFF GUIDING CYLINDER WITH 2 GUIDE CARRIAGES

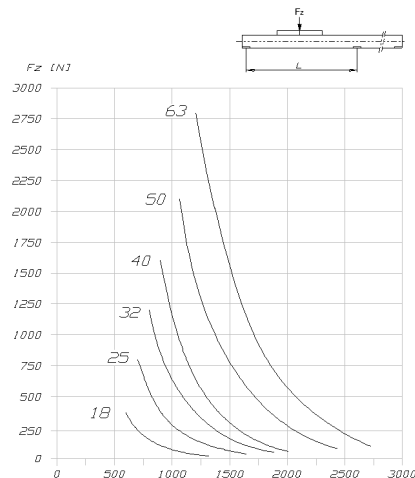
Piston Ø	$v_{max} \leq 0.35 \text{ m/s}$			$F_{zul.} \text{ at } v$			Torque		
	$F_x \text{ (N) at}$	$F_y \text{ (N) at}$	$F_z \text{ (N) at}$	$F_{zul.} \text{ (N) at}$	$F_{zul.} \text{ (N) at}$	$F_{zul.} \text{ (N) at}$	$M_x \text{ (Nm)}$	$M_x \text{ (Nm)}$	$M_x \text{ (Nm)}$
	6 bar			0.75 m/s	1 m/s	1.5 m/s	F_y/F_z	F_x/F_z	F_x/F_y
18	140	550	550	150	80	31	5.2	9	9
25	270	1200	1200	420	210	80	15	30	30
32	440	1800	1800	750	400	170	37	67	67
40	680	2400	2400	1500	750	300	60	110	110
50	1060	3200	3200	2200	1150	460	120	220	220
63	1680	4200	4200	3700	1900	740	170	370	370

ZFK GUIDING CYLINDER WITH SHORT GUIDE CARRIAGE

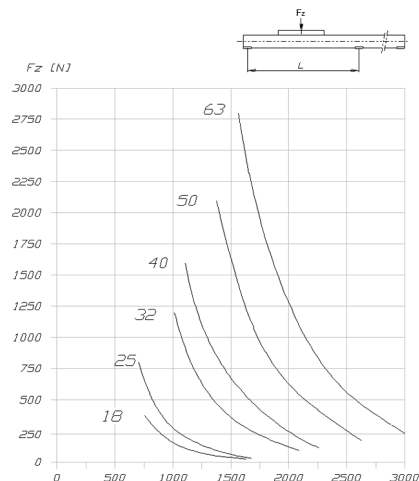
Piston Ø	$v_{max} \leq 0.35 \text{ m/s}$			$F_{zul.} \text{ at } v$			Torque		
	$F_x \text{ (N) at}$	$F_y \text{ (N) at}$	$F_z \text{ (N) at}$	$F_{zul.} \text{ (N) at}$	$F_{zul.} \text{ (N) at}$	$F_{zul.} \text{ (N) at}$	$M_x \text{ (Nm)}$	$M_x \text{ (Nm)}$	$M_x \text{ (Nm)}$
	6 bar			0.75 m/s	1 m/s	1.5 m/s	F_y/F_z	F_x/F_z	F_x/F_y
18	140	150	150	50	30	12	1.8	1.8	1.8
25	270	250	250	100	60	30	4	4	4
32	440	450	450	250	135	65	10	10	10
40	680	600	600	480	280	140	16	16	16
50	1060	900	900	800	480	220	30	30	30
63	1680	1100	1100	1500	950	400	45	45	45

Tube deflection charts:

(FZ) with Deflection of 0.5MM



(FZ) with Deflection of 1.0MM



Support Selection

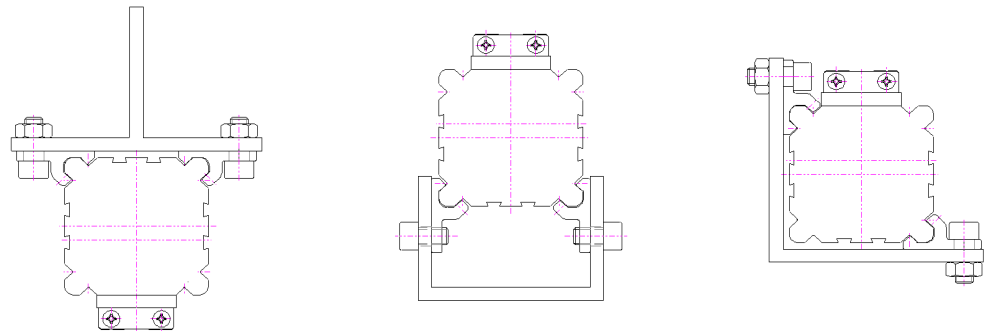
When using very long cylinders or applying heavy loads, tube deflection must be considered. One or more middle supports are recommended if excessive deflection is expected.

Example:

A cylinder Ø25 should deflect by a maximum of 0.5 mm when applying a force FZ of 500N. According to the diagram the cylinder can be up to 750 mm long. Longer cylinders require a middle support. For pictorial representation of middle supports integrated on standard profiles, see figure below:

Other possibilities:

In applications where long cylinders are installed without supports, alternate profiles which resist deflection can be used in lieu.



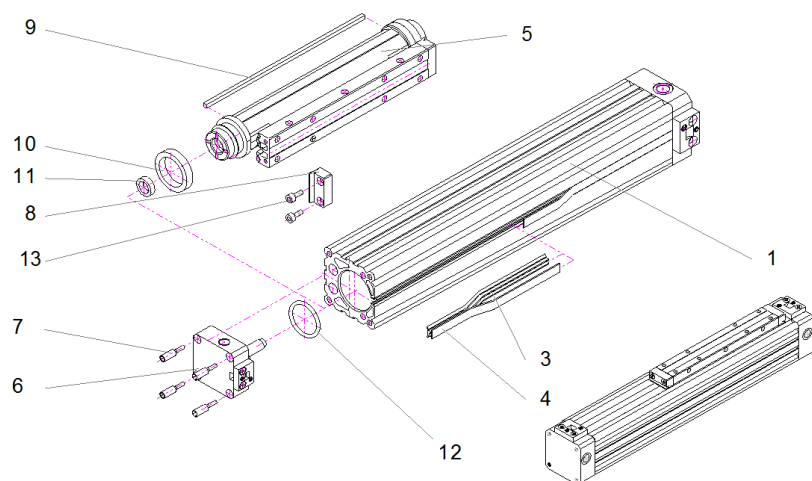
Common Conversions

To Convert	Into	Multiply By
Bar	PSI	14.504
KiloPascals	PSI	0.1450
Newtons	Pounds	0.2248
Newton Meters	Inch Pounds	8.8507
Kilograms	Pounds	2.2046



SPARE PARTS

Internally Guided Versions Style ZK and ZS

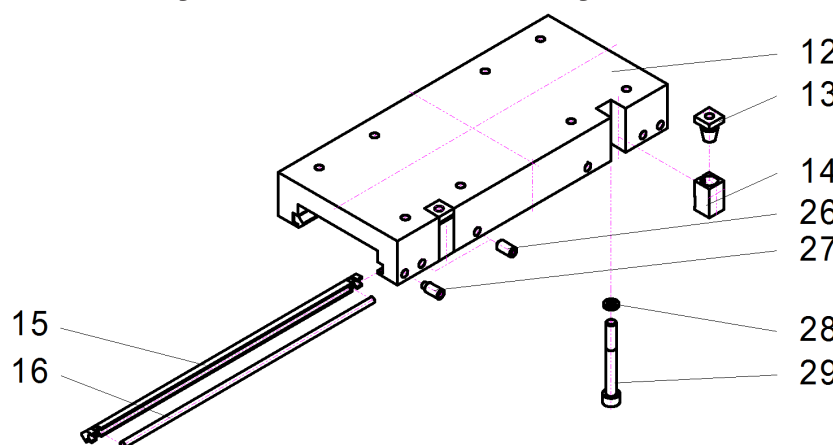


Item	Description	Material
1	Tube	Anodized Aluminum
3	Sealing strip	Polyurethane*
4	Cover strip	Stainless steel
5	Yoke	Al anodized / POM
6	End cap	Al anodized
7	Special screw	Zinc-plated steel
8	Head wiper	POM
9	Wiper	POM
10	Piston seal	PU
11	Cushion ring	NBR
12	O-Ring	NBR
13	Cylinder head screw	Zinc-plated steel

* with cable reinforcement

	Spares Kit Type ZK	Spares Kit Type ZS	Seal and Cover Strip Set		
Bore	Contains 2 each of items #8 to #12		1m Length	5m Length	10m Length
18	1189-0089	1189-0088	1189-0066	1189-0033	1189-0011
25	1259-0089	1259-0088	1259-0066	1259-0033	1259-0011
32	1329-0089	1329-0088	1329-0066	1329-0033	1329-0011
40	1409-0089	1409-0088	1409-0066	1409-0033	1409-0011
50	1509-0089	1509-0088	1509-0066	1509-0033	1509-0011
63	1639-0089	1639-0088	1639-0066	1639-0033	1639-0011

Externally Guided Versions Style ZFK, ZF, and ZFF



Item	Description	Material
12	Carriage	Anodized Aluminum
13	Cone nut	Zinc-plated steel
14	Clamp wedge	Al anodized
15	Guiding bar	POM
16	Press bar	Stainless steel
26	Grub screw	Browned steel
27	Grub screw with pin	Browned steel
28	Plain washer	Zinc-plated steel
29	Cylinder head screw	Zinc-plated steel

	Type ZFK		Type ZF		Type ZFF	
Bore	Guide Bar Kit *	Carriage Complete	Guide Bar Kit *	Carriage Complete	Guide Bar Kit *	Carriage Complete
18	3189-0089	1180-0001	3189-0088	1180-0000	3189-0088	1180-0000
25	3259-0089	1250-0001	3259-0088	1250-0000	3259-0088	1250-0000
32	3329-0089	1321-0001	3329-0088	1321-0000	3329-0088	1321-0000
40	3409-0089	1400-0001	3409-0088	1400-0000	3409-0088	1400-0000
50	3509-0089	1500-0001	3509-0088	1500-0000	3509-0088	1500-0000
63	3639-0089	1630-0001	3639-0088	1630-0000	3639-0088	1630-0000

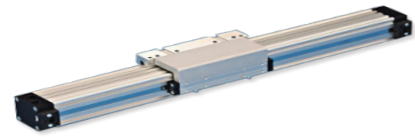
* Guide bar kit includes 2 each of Item 15 (for type ZFF Carriage Versions, 2 kits are required).

SPECIAL VERSIONS

Guided Cylinder with Bottom Mount Carriage

ZFU

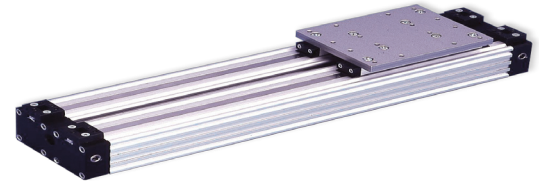
- External guiding bar located on the bottom.
- Force is transmitted through an angle bracket to handle higher loads.



Parallel Cylinder

ZP

- Designed flat with adjustable parallel cylinders for double the force
- For movement of large work pieces



Guided Cylinder with Brake

ZFB

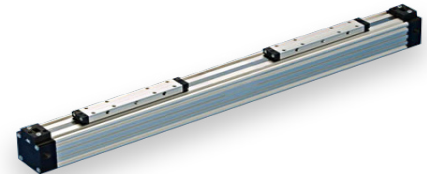
- Tested safety locking unit with external slide guide
- Existing cylinders can be retrofitted with braking unit.



Tandem Cylinder

ZTS, ZTK

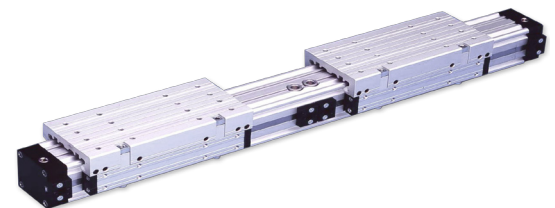
- Developed for high moments in longitudinal direction.
- Excellent choice for mounting large work pieces to yoke.
- Carriages are not linked internally.



Gripper Cylinder

ZGS, ZGK

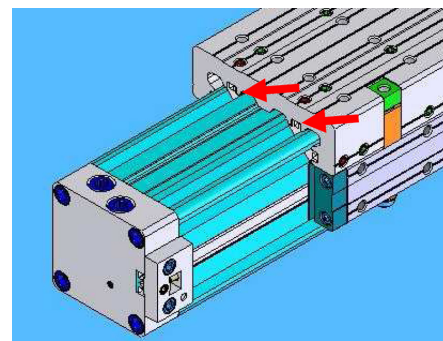
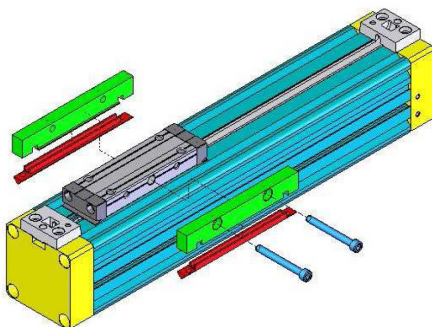
- Gripper cylinders can be used for outside and inside clamping of work pieces, or open/close applications.
- Independent carriage control permits same direction action if required.
- Externally connecting the carriages doubles output force.



LOAD ENHANCEMENT OPTIONS

ZS+, ZK+, ZF+, ZFK+

- Extend your cylinder's load capabilities with additional guide bars.



Contact CPI customer service for detailed information.



CPIAUTOMATION

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