

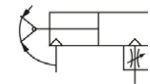
# Pneumatic Grippers

## Pneumatic Grippers

- Uses a single piston structure to generate a large gripping force
- Integrated variable flow valve to conveniently adjust the speed of opening and closing of the fingers
- Precise positioning accuracy when gripping components
- Body profile adapted with grooves for mounting sensor switches
- Integrated magnet for added control
- Gripping jaw opening and closing angle 30° to -10°
- Single acting N/O available on request
- Interchangeability: SMC

Tech Sheet 20470

KHFY: Double Acting



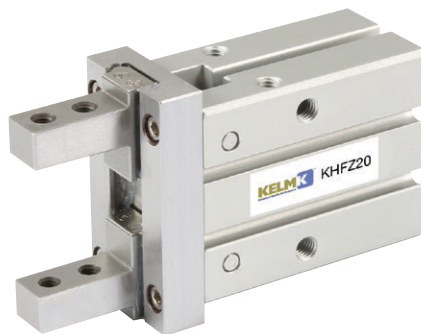
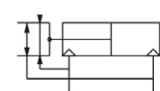
### Double Acting, Angular Style

0415			Optimum Gripping Points Length mm	£
KHFY6	M3 x 0.5	6	30	95.20
KHFY10	M3 x 0.5	10	30	95.20
KHFY16	M5 x 0.8	16	40	101.60
KHFY20	M5 x 0.8	20	60	114.25
KHFY25	M5 x 0.8	25	70	133.30
KHFY32	M5 x 0.8	32	85	158.60

- Integrated linear guide rail for high precision and rigidity
- Positioning pin at the base of the unit to prevent deviation of the rail and body
- Deeper hole on the body to improve precision and consistency when dismounting and positioning
- Variable positioning jaws
- Body profile adapted with grooves for mounting sensor switches
- Other finger types available on request
- Single acting N/O and N/C available on request
- Interchangeability: SMC

Tech Sheet 20471

KHFZ: Double Acting



### Double Acting, Parallel Style

0415			Gripping Point Length mm	Open Diameter mm	Closed Diameter mm	£
KHFZ10	M3 x 0.5	6	5-50	15.5	11.5	206.30
KHFZ16	M5 x 0.8	16	5-55	21.0	15.0	215.70
KHFZ20	M5 x 0.8	20	5-80	26.5	16.5	238.10
KHFZ25	M5 x 0.8	25	5-100	33.5	19.5	285.55

### How to select product:

Please select pneumatic finger according to the following steps:  
 the selection of the effective gripping force → the confirmation of the gripping point → the confirmation of the external force put on the gripping jaw.

The selection of the gripping force:

The work-pieces as shown in the left:  
 F: Gripping force (N)  
 μ: Friction coefficient between fittings and work-pieces.  
 m: mass of work-pieces  
 g: acceleration of gravity (=9.8m/s<sup>2</sup>)

The condition that the work-pieces won't drop is:  $2 \times \mu \times F > mg$

so:  $F > \frac{mg}{2 \times \mu}$

Safety coefficient is a, so F is:  
 $F = \frac{mg}{2 \times \mu \times a}$

Note: If the friction coefficient  $\mu > 0.2$ , for safety, please also select clamping force according to the principle of 10-20 times of the mass of the clamped objects. As for large acceleration and shock, it requires for greater safety coefficient.

The gripping work-pieces shown above, on the impact condition of ordinary handling state, taking safety coefficient a=4, have a gripping force that is more than 10-20 times of the mass of the gripped objects.

$\mu = 0.2$ $F = \frac{mg}{2 \times 0.2 \times 4} = 10 \times mg$	$\mu = 0.1$ $F = \frac{mg}{2 \times 0.1 \times 4} = 20 \times mg$
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10 times of the mass of the gripped objects      20 times of the mass of the gripped objects

Slim profile for discreet safe mounting to grippers.



Tech Sheet 20472

### Sensor Switch, Two-line, N/O

0415		Connecting Cable		£
KDS1-H-C08	Straight Connection	M8 Quick Joint	0.15m	24.65
KDS1-H-020	Straight Connection	-	2m	19.95
KDS1-H-030	Straight Connection	-	3m	21.05
KDS1-H-050	Straight Connection	-	5m	23.25
KDS1-HL-C08	90° Connection	M8 Quick Joint	0.15m	24.65
KDS1-HL-020	90° Connection	-	2m	19.95
KDS1-HL-030	90° Connection	-	3m	21.05
KDS1-HL-050	90° Connection	-	5m	23.25

### Sensor Switch, Three-line NPN with No Contact (Current Flows In), N/O

Tech Sheet 20472

0415		Connecting Cable		£
KDS1-H-N-C08	Straight Connection	M8 Quick Joint	0.15m	34.50
KDS1-H-N-020	Straight Connection	-	2m	29.80
KDS1-H-N-030	Straight Connection	-	3m	31.20
KDS1-H-N-050	Straight Connection	-	5m	34.15
KDS1-HL-N-C08	90° Connection	M8 Quick Joint	0.15m	34.50
KDS1-HL-N-020	90° Connection	-	2m	29.80
KDS1-HL-N-030	90° Connection	-	3m	31.20
KDS1-HL-N-050	90° Connection	-	5m	34.15

### Sensor Switch, Three-line PNP with No Contact (Current Flows Out), N/O

Tech Sheet 20472

0415		Connecting Cable		£
KDS1-H-P-C08	Straight Connection	M8 Quick Joint	0.15m	34.50
KDS1-H-P-020	Straight Connection	-	2m	29.80
KDS1-H-P-030	Straight Connection	-	3m	31.20
KDS1-H-P-050	Straight Connection	-	5m	34.15
KDS1-HL-P-C08	90° Connection	M8 Quick Joint	0.15m	34.50
KDS1-HL-P-020	90° Connection	-	2m	29.80
KDS1-HL-P-030	90° Connection	-	3m	31.20
KDS1-HL-P-050	90° Connection	-	5m	34.15