

# **ROBA®-guidestop**

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P.380000.V09.EN



# Expert know-how in development and design

As the technological leader, *mayr*<sup>®</sup> power transmission focuses on continuous further development. Today, highly qualified engineers and technicians work on tomorrow's innovations using the most up-to-date tools. The many years of experience and countless tests in the Development and Testing Department at the Mauerstetten Headquarters form the basis of conscientious lifetime dimensioning.

The values upheld by our traditional, family-run company also include long-term stability and independence as well as a good reputation and satisfied customers.

Therefore, we place emphasis on:

- Tested product quality,
- Optimum customer service,
- Comprehensive know-how,
- Global presence,
- Successful innovations and
- Effective cost management

# Tested quality and reliability

*mayr*<sup>®</sup> brakes and clutches/couplings are subject to meticulous quality inspections. These include quality assurance measures during the design process as well as a comprehensive final inspection. Only the best, tested quality leaves our place of manufacture. All products are rigorously tested on calibrated test stands, and adjusted precisely to the requested values. An electronic database in which the measured values are archived together with the associated serial numbers guarantees 100 % traceability. On request, we confirm the product characteristics with a test protocol.

The certification of our quality management according to DIN EN ISO 9001:2015 confirms the quality-consciousness of our colleagues at every level of the company.

# Specialists in power transmission for more than a century

*mayr*<sup>®</sup> power transmission is one of the most traditional and yet most innovative companies in the field of power transmission. From modest beginnings in the year 1897, the family enterprise has developed to become the world market leader. Worldwide, the company employs approximately 1200 people.

### An unsurpassed standard product range

*mayr*<sup>®</sup> power transmission offers an extensive range of variants of torque limiters, safety brakes, backlash-free shaft misalignment compensation couplings and high-quality DC drives. Numerous renowned machine manufacturers trust in solutions by *mayr*<sup>®</sup> power transmission.

## **Represented worldwide**

With eight subsidiaries in Germany, sales offices in the USA, France, Great Britain, Italy, Singapore and Switzerland as well as 36 additional country representatives, *mayr*<sup>®</sup> is available in all important industrial areas, guaranteeing optimum customer service around the globe.

# Never compromise on safety

We make no compromises where safety is concerned. Only top products of a perfect quality guarantee that no people are injured or machines damaged in case of malfunctions, collisions and other hazardous situations. The safety of your employees and machines is our motivation to always provide the best and most reliable clutches, couplings or brakes.

*mayr*<sup>®</sup> power transmission holds numerous ground-breaking patents, and is the global market or technological leader for

- application-optimised safety brakes, for example for passenger elevators, stage technology and gravity-loaded axes
- torque limiters to protect against expensive overload damage and production losses and
- backlash-free servo couplings.

## **Strongly positioned**

*mayr*<sup>®</sup> sets standards in power transmission with economically viable solutions. For maximum competitiveness of your machines and systems, we always aim for the best possible cost efficiency, starting with the development of your clutch/ coupling or brake, right up to delivery of the finished and inspected product. For cost-efficient production, our factories in Poland and China represent the perfect supplement to the headquarters in Germany.



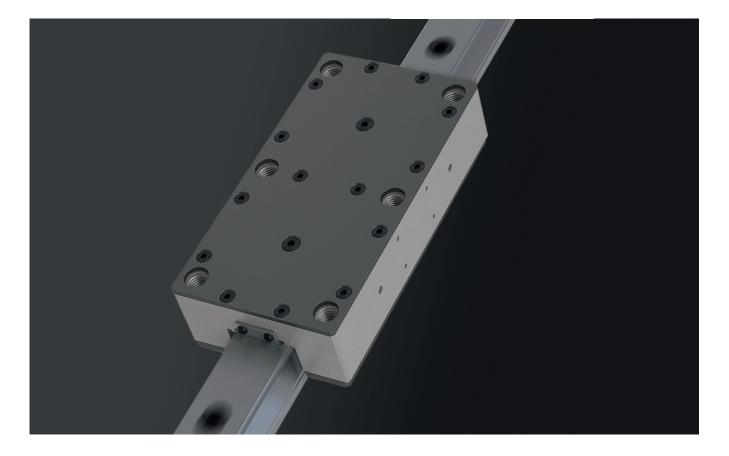
mayr® headquarters in Mauerstetten



Subsidiary with Production - mayr® China



Subsidiary with Production - mayr® Poland



## Maximum functional safety

ROBA<sup>®</sup>-guidestop safety brakes operate according to the fail-safe principle. Pre-tensioned cup springs press the brake shoes onto the "waistline" of the profiled rail. The brake mechanism is designed for relatively large stroke paths and compensates for production tolerances in profiled rails without loss of braking force.

## Safety through direct clamping

ROBA<sup>®</sup>-guidestop safety brakes clamp directly onto the linear guide with an extremely high degree of rigidity. They are therefore directly mounted onto the masses which are to be braked or held. Drive elements between the motor and the moved mass, such as for example spindles, spindle nuts, shaft couplings or gears, can thus have no influence on safety.

## Perfect for vertical axes

Direct clamping onto the linear guide predestines the ROBA<sup>®</sup>guidestop for application in gravity-loaded axes where hazard risks for people are to be minimised.

## **High rigidity**

ROBA<sup>®</sup>-guidestop safety brakes are more rigid than rod or band brakes by a factor of at least 3. Rotatory motor brakes withstand even less in comparison. They are usually subject to backlash, and furthermore every element between the brake and the carriage has a negative effect on rigidity.

## Relief for spindle and guide

ROBA<sup>®</sup>-guidestop takes on the load when the axis is stationary, for example during machining. In this phase, the drive motor can be switched off and removed from the control. This eliminates the control movements and is thus gentle on the ball screw spindle. The closed brake absorbs the axial forces. The lifetimes and maintenance intervals for the drive components are therefore increased.

## More accurate with higher cutting capacities

The backlash-free clamping additionally reinforces the NC axis. This increases process accuracy, increases the cutting capacities and provides advantages during heavy-duty machining. The machining generates less vibration and thus improves the surface quality of the workpiece.

## Switching condition monitoring

An integrated proximity switch emits a signal every time the brake condition changes.



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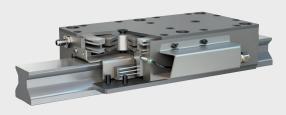


# **ROBA®-guidestop profiled rail brakes** decelerate reliably and safely - Clamp rigidly and backlash-free

- maximum safety due to fail-safe principle
- **Type 3840, 3850/3852, power pack with two** brake circuits for double holding force
- □ Type 3841, 3851/3853, cost-efficient solution for limited installation space
- □ safety and reliability thanks to direct, backlash-free clamping

## Hydraulically actuated

Standard or short design



## **Pneumatically actuated**

Standard or short design



- □ high degree of rigidity up to the full nominal holding force
- extremely high holding forces
- designed for standard linear guides
- with switching condition monitoring

## **ROBA®-guidestop hydraulic** Type 384%.0\_

Clamps a profiled rail via a spring-loaded device at the exact position required and backlash-free. EMERGEN-CY STOP braking possible.

Please observe profiled rail requirements!

Nominal holding force: 5000 - 34000 N Opening of the brake with 70 - 100 bar For data and description, please see pages 6 - 9.

# **ROBA®-guidestop pneumatic**

Type 385%.0

Clamps a profiled rail via a spring-loaded device at the exact position required and backlash-free.

EMERGENCY STOP braking possible. Please observe profiled rail requirements!

## Type 385<sup>0</sup>/<sub>1</sub>.1\_\_\_\_

Clamps and brakes a profiled rail via a spring-loaded device at the exact position required and backlash-free. At least 2000 dynamic braking actions possible.

Nominal holding force: 700 - 12000 N

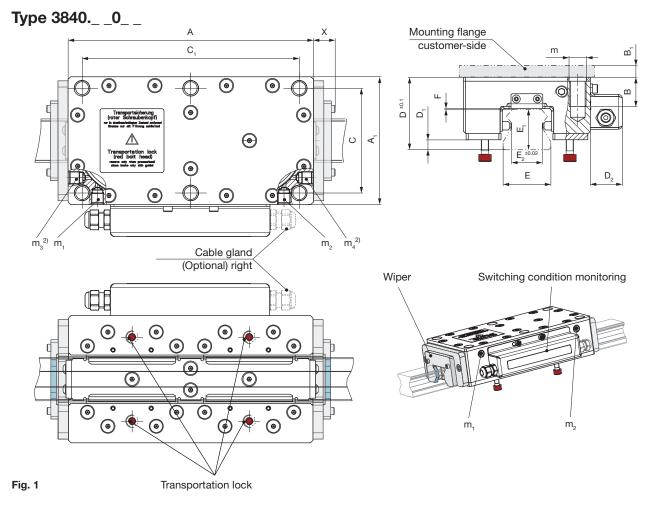
Opening of the brake with 4, 5 or 6 bar.

For data and description, please see pages 10 - 13.

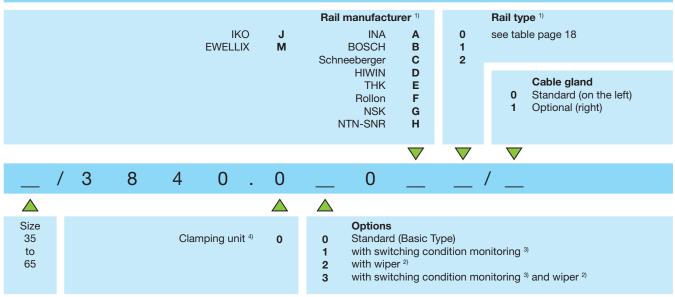
Pneumatically actuated with a pressure of 20 bar 2 brake circuits or short design	<b>ROBA®-guidestop pneumatic</b> <b>Type 385<sup>2</sup>/<sub>3</sub>.0</b> Clamps a profiled rail via a spring-loaded device at the exact position required and backlash-free. EMERGEN- CX STOP braking possible
<ul> <li>with comparable nominal holding force as the hydraulic series</li> </ul>	CY STOP braking possible. Please observe profiled rail requirements!
	Nominal holding force: 2750 – 30000 N
	Opening of the brake with 20 – 28 bar.
	For data and description, please see pages 14 - 17.
For control with a pressure of 20 bar	Pressure booster for ROBA <sup>®</sup> -guidestop Type 3880
	For data and description, please see pages 20 - 22.



# **ROBA®-guidestop hydraulic**



## **Order Number**



#### Example: Order number 45 / 3840.010A1 / 0

1) For other rail manufacturers and rail types, please contact mayr® power transmission.

- 2) With a wiper, connections  $m_3$  and  $m_4$  can no longer be used.
- 3) 2 proximity switches are installed
- 4) Possible operating modes: Please observe page 19



Technical Data			Size			
Technical Data			35	45	55	65
Nominal holding force F <sup>2)3)</sup>		[N]	10000	15000	20000	34000
	Tolerance	Туре 3840.0		0%/-	+150%	
Weight		[kg]	6	9	16	27
		[bar]	70	70	70	85
Operating pressure	max.	[bar]	90	90	90	100
Rigidity		[N/µm]	380	490	860	1000
Hydraulic connection thread	m <sub>1</sub>	, m <sub>2</sub> , m <sub>3</sub> , m <sub>4</sub>		1/	8"	
Pressure Medium			Us	e hydraulic oil acc.	DIN 51524-1:2006-	-04
Absorption volume		[cm <sup>3]</sup>	14 21 34 48			
Ambient Temperature		[°C]		-10 t	o +60	

2) The dimensioning as a redundant dual circuit brake (optional) may only be implemented with half of the nominal holding force.3) Minimum holding force when the brake is not pressurised and when the profiled rail is dry or moistened with mineral oil.

Dimensions	Size					
[mm]	35	45	55	65		
Α	192	225	270	325		
A <sub>1</sub>	100	120	140	170		
В	21.7	27.7	35.7	43		
<b>B</b> <sub>1</sub> <sup>4)</sup>	10	15	25	35		
С	82	96	110	134		
C <sub>1</sub>	170	196	240	288		
D <sub>2</sub>	25	25	25	25		
E	34	45	53	63		
<b>m</b> <sup>5)</sup>	6 x M12	6 x M16	6 x M20	6 x M24		
Х		Dimension depends or	n the rail manufacturer			

4) Required minimum thickness of the customer-side mounting flange (Steel) 5) Tapped hole

Dimensions [mm]		
Rail Rai manufacturer	il type	For details see page 18

For detailed information on selection, dimensioning, installation, initial operation and maintenance, please see the Installation and Operational Instructions.

We reserve the right to make dimensional and constructional alterations.



## **ROBA®-guidestop short design, hydraulic**

Type 3841.\_\_0\_\_

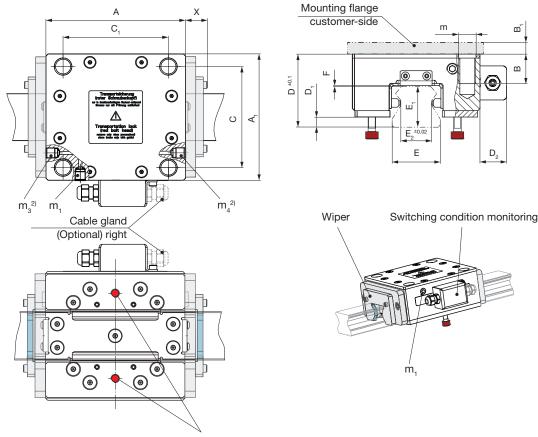
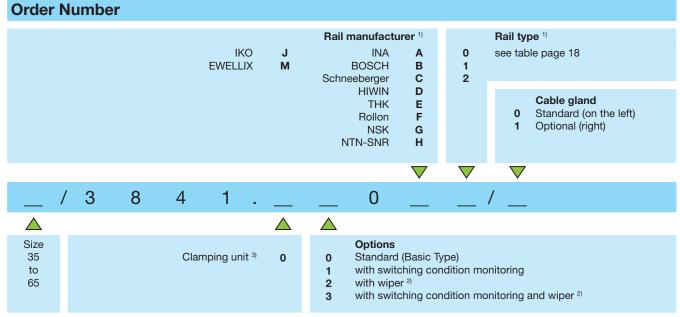


Fig. 2

Transportation lock



## Example: Order number 45 / 3841.010A1 / 0

1) For other rail manufacturers and rail types, please contact mayr® power transmission.

- 2) With a wiper, connections  $m_{_3}$  and  $m_{_4}$  can no longer be used. 3) Possible operating modes: Please observe page 19



Technical Data			Size			
Technical Data			35	45	55	65
Nominal holding force F <sup>2)</sup>		[N]	5000	7500	10000	17000
	Tolerance	Tolerance Type 3841.0_0		0% / +	150%	
Weight		[kg]	3.5	5.5	9	16
Operating processo	min.		70	70	70	85
Operating pressure	max.	[bar]	90	90	90	100
Rigidity		[N/µm]	180	245	430	500
Hydraulic connection thread	n	n <sub>1</sub> , m <sub>3</sub> , m <sub>4</sub>		1/8	)" )	
Pressure Medium			Use hydraulic oil acc. DIN 51524-1:2006-04			
Absorption volume		[cm <sup>3]</sup>	7 10.5 17 24			
Ambient Temperature		[°C]		-10 to	+60	

2) Minimum holding force when the brake is not pressurised and when the profiled rail is dry or moistened with mineral oil.

Dimensions	Size					
[mm]	35	45	55	65		
Α	115	130	155	190		
<b>A</b> <sub>1</sub>	100	120	140	170		
В	21.7	27.7	35.7	43		
<b>B</b> <sub>1</sub> <sup>3)</sup>	10	15	25	35		
С	82	96	110	134		
<b>C</b> <sub>1</sub>	92	98	125	152		
$D_2$	25	25	25	25		
E	34	45	53	63		
<b>m</b> <sup>4)</sup>	4 x M12	4 x M16	4 x M20	4 x M24		
Х		Dimension depends or	n the rail manufacturer			

3) Required minimum thickness of the customer-side mounting flange (Steel)4) Tapped hole

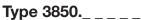
Dimensions [n	nm]	
Rail manufacturer	Rail type	For details see page 18

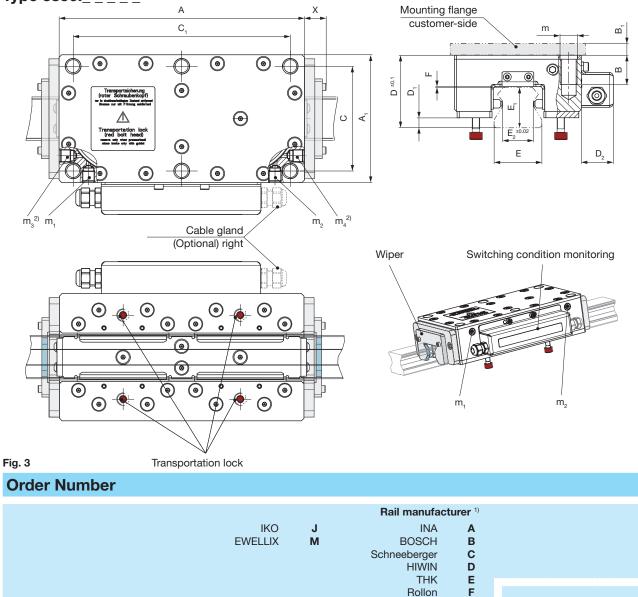
For detailed information on selection, dimensioning, installation, initial operation and maintenance, please see the Installation and Operational Instructions.

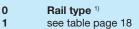
We reserve the right to make dimensional and constructional alterations.



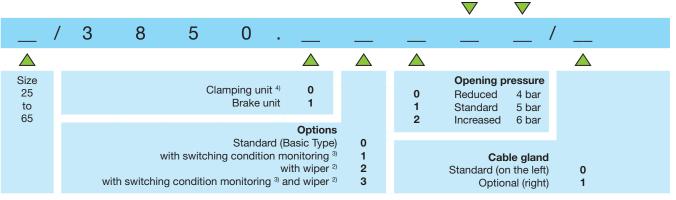
# **ROBA®-guidestop Standard, pneumatic**











## Example: Order number 45 / 3850.000A1 / 0

For other rail manufacturers and rail types, please contact *mayr*<sup>®</sup> power transmission.
 With a wiper, connections m<sub>3</sub> and m<sub>4</sub> can no longer be used.

3) 2 proximity switches are installed

NSK

NTN-SNR

G

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2

4) Possible operating modes: Please observe page 19



Technical Data					Size		
Technical Data			25	35	45	55	65
	4 bar	Туре 3850.0_0	1400	2800	4000	6000	8000
	5 bar	Type 3850.0_1	1700	3500	5000	7000	10000
	6 bar	Type 3850.0_2	2200	4400	6000	9000	12000
Nominal holding force <sup>3) 4) 5)</sup>	4 bar	Type 3850.1_0	980	1960	2800	4200	5600
F <sub>N</sub> [N]	5 bar	Type 3850.1_1	1190	2450	3500	4900	7000
	6 bar	Type 3850.1_2	1540	3080	4200	6300	8400
	Toler-	Туре 3850.0			0% / +150%		
	ance	Type 3850.1			0% / +70%		
Weight	[kg]		2.4	5.4	9	14.5	26.7
Max. Operating pressure	[bar]				8		
Rigidity	[N/µm]		200	380	490	860	1000
Pneumatic connection thread	m <sub>1</sub> , m <sub>2</sub> ,	m <sub>3</sub> , m <sub>4</sub>	M5	1/8"	1/8"	1/8"	1/8"
Air consumption per		Туре 38500	0.063	0.120	0.179	0.241	0.34
switching procedure in	[NL]	Type 38501	0.079	0.150	0.224	0.301	0.42
standard litres at opening pressure		Туре 38502	0.095	0.180	0.269	0.361	0.5
Pressure Medium			Compressed air with compressed air quality acc. ISO 8573-1 Class 7:4:4				1 Class 7:4:4
Ambient Temperature	[°C]				-10 to +60		

3) The dimensioning as a redundant dual circuit brake (optional) may only be implemented with half of the nominal holding force.
4) Minimum holding force when the brake is not pressurised and when the profiled rail is dry or moistened with mineral oil.
5) At a switching frequency > 200.000, please reckon with a nominal holding force reduction of 20 %. The lower tolerance value must be considered here.

Dimensions			Size		
[mm]	25	35	45	55	65
Α	145	192	225	270	325
A <sub>1</sub>	70	100	120	140	170
В	14.7	21.7	27.7	35.7	43
<b>B</b> <sub>1</sub> <sup>6)</sup>	10	10	15	25	35
С	58	82	96	110	134
C <sub>1</sub>	132	170	196	240	288
D <sub>2</sub>	25	25	25	25	25
E	23	34	45	53	63
<b>m</b> <sup>7)</sup>	6 x M8	6 x M12	6 x M16	6 x M20	6 x M24
X		Dimensior	n depends on the rail ma	nufacturer	

6) Required minimum thickness of the customer-side mounting flange (Steel) 7) Tapped hole

Dimensions [n	nm]	
Rail manufacturer	Rail type	For details see page 18

For detailed information on selection, dimensioning, installation, initial operation and maintenance, please see the Installation and Operational Instructions.

We reserve the right to make dimensional and constructional alterations.



# **ROBA®-guidestop Standard short design, pneumatic**

Туре 3851.\_\_\_\_

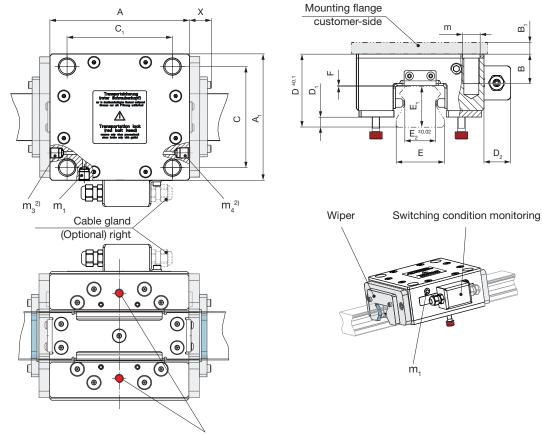
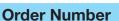
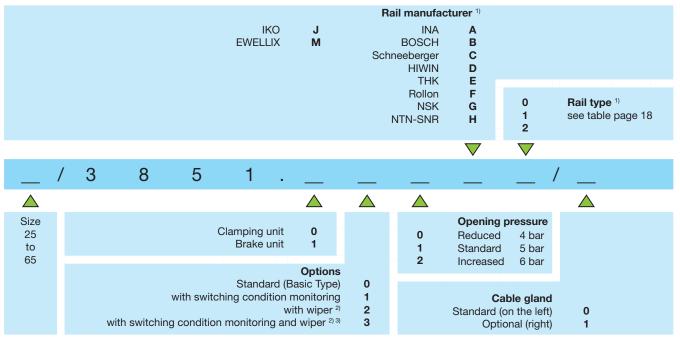


Fig. 4

Transportation lock





## Example: Order number 45 / 3851.000A1 / 0

 For other rail manufacturers and rail types, please contact mayr<sup>®</sup> power transmission. 3) With wiper and switching condition monitoring, for Sizes 25, 45 and 55 the cable gland is only possible on the right.

2) With a wiper, connections  $\rm m_{_3}$  and  $\rm m_{_4}$  can no longer be used.

4) Possible operating modes: Please observe page 19



Technical Data					Size		
Technical Data			25	35	45	55	65
	4 bar	Type 3851.0_0	700	1400	2000	3000	4000
	5 bar	Type 3851.0_1	850	1750	2500	3500	5000
	6 bar	Type 3851.0_2	1100	2200	3000	4500	6000
Nominal holding force <sup>3) 4)</sup>	4 bar	<b>Type 3851.1_0_</b>	490	980	1400	2100	2800
F <sub>N</sub> [N]	5 bar	Type 3851.1_1	595	1225	1750	2450	3500
	6 bar	Type 3851.1_2	770	1540	2100	3150	4200
	Toler-	Type 3851.0			0% / +150%		
	ance	Type 3851.1			0% / +70%		
Weight	[kg]		1.5	3.3	5.1	8.4	15.6
Max. Operating pressure	[bar]				8		
Rigidity	[N/µm]		100	190	245	430	500
Pneumatic connection thread	m <sub>1</sub> , m <sub>3</sub> ,	m <sub>4</sub>	M5	1/8"	1/8"	1/8"	1/8"
Air consumption per		Type 38510	0.032	0.060	0.090	0.120	0.17
switching procedure in	[NL]	Type 38511	0.039	0.075	0.112	0.151	0.21
standard litres at opening pressure		Type 38512	0.047	0.090	0.135	0.181	0.25
Pressure Medium			Compressed air with compressed air quality acc. ISO 8573-1 Class 7:4:4				1 Class 7:4:4
Ambient Temperature	[°C]				-10 to +60		

3) Minimum holding force when the brake is not pressurised and when the profiled rail is dry or moistened with mineral oil.
 4) At a switching frequency > 200.000, please reckon with a nominal holding force reduction of 20 %. The lower tolerance value must be considered here.

Dimensions			Size		
[mm]	25	35	45	55	65
Α	88	115	130	155	190
<b>A</b> <sub>1</sub>	70	100	120	140	170
В	14.7	21.7	27.7	35.7	43
<b>B</b> <sub>1</sub> <sup>5)</sup>	10	10	15	25	35
С	58	82	96	110	134
<b>C</b> <sub>1</sub>	75	92	98	125	152
$D_2$	25	25	25	25	25
E	23	34	45	53	63
<b>m</b> <sup>6)</sup>	4 x M8	4 x M12	4 x M16	4 x M20	4 x M24
X		Dimensior	n depends on the rail ma	nufacturer	

5) Required minimum thickness of the customer-side mounting flange (Steel) 6) Tapped hole

Dimensions [m	ım]	
Rail manufacturer	Rail type	For details see page 18

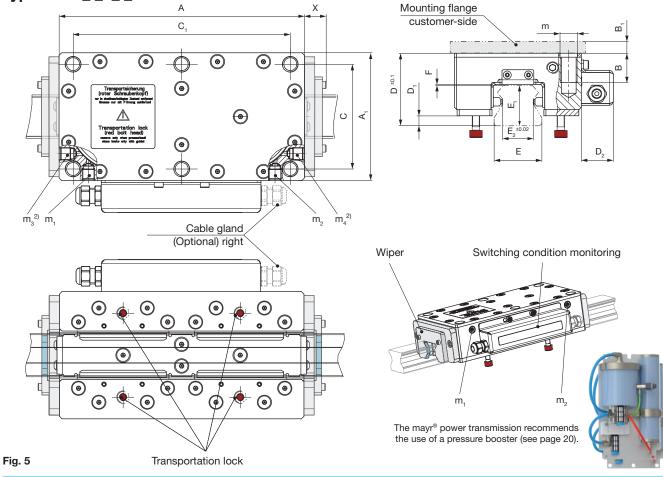
For detailed information on selection, dimensioning, installation, initial operation and maintenance, please see the Installation and Operational Instructions.

We reserve the right to make dimensional and constructional alterations.

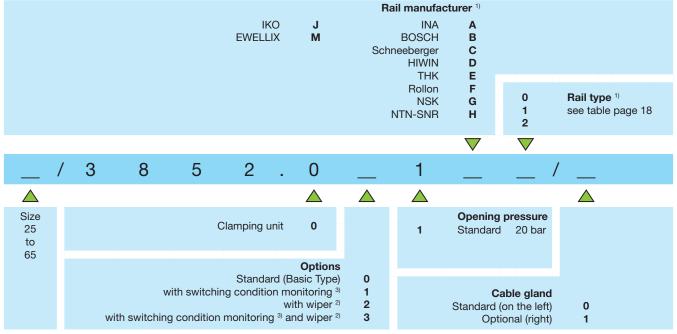


# **ROBA®-guidestop high pressure, pneumatic**

Type 3852.\_\_1\_\_



## **Order Number**



## Example: Order number 45 / 3852.000A1 / 0

 For other rail manufacturers and rail types, please contact mayr<sup>®</sup> power transmission.

power
 2 proximity switches are installed
 A) Possible operating medacy Placed

2) With a wiper, connections  $m_3$  and  $m_4$  can no longer be used.

4) Possible operating modes: Please observe page 19



Technical Data					Size		
Technical Data			25	35	45	55	65
Nominal holding force <sup>3) 4) 5)</sup>	20 bar	Type 3852.0_1	5500	10000	15000	20000	30000
F <sub>N</sub> [N]	Toler- ance	Type 3852.0_1			0% / +150%		
Weight	[kg]		2.4	5.4	9	14.5	26.7
Operating pressure	[bar]				20 - 28		
Rigidity	[N/µm]		200	380	490	860	1000
Pneumatic connection thread	m <sub>1</sub> , m <sub>2</sub> ,	m <sub>3</sub> , m <sub>4</sub>	M5	1/8"	1/8"	1/8"	1/8"
Air consumption per switching procedure in standard litres at opening pressure	[NL]		0.31	0.600	0.89	1.20	1.3
Pressure Medium			Compressed	l air with compre	essed air quality	acc. ISO 8573-	1 Class 7:4:4
Ambient Temperature	[°C]				-10 to +60		

3) The dimensioning as a redundant dual circuit brake (optional) may only be implemented with half of the nominal holding force.
4) Minimum holding force when the brake is not pressurised and when the profiled rail is dry or moistened with mineral oil.
5) At a switching frequency > 200.000, please reckon with a nominal holding force reduction of 20 %. The lower tolerance value must be considered here.

Dimensions			Size		
[mm]	25	35	45	55	65
А	145	192	225	270	325
A <sub>1</sub>	70	100	120	140	170
В	14.7	21.7	27.7	35.7	43
<b>B</b> <sub>1</sub> <sup>6)</sup>	10	10	15	25	35
С	58	82	96	110	134
C <sub>1</sub>	132	170	196	240	288
D <sub>2</sub>	25	25	25	25	25
E	23	34	45	53	63
<b>m</b> <sup>7)</sup>	6 x M8	6 x M12	6 x M16	6 x M20	6 x M24
X		Dimensior	n depends on the rail ma	nufacturer	

6) Required minimum thickness of the customer-side mounting flange (Steel) 7) Tapped hole

Dimensions [m	ım]	
Rail manufacturer	Rail type	For details see page 18

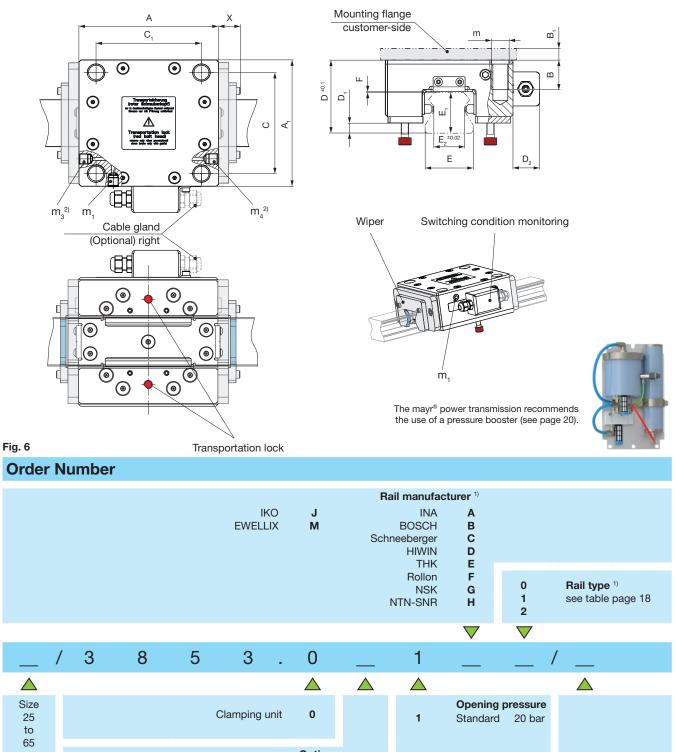
For detailed information on selection, dimensioning, installation, initial operation and maintenance, please see the Installation and Operational Instructions.

We reserve the right to make dimensional and constructional alterations.



# **ROBA®-guidestop high pressure short design, pneumatic**

Type 3853.\_\_1\_\_



**Options** Standard (Basic Type)

0

1

2

3

- with switching condition monitoring
  - with wiper <sup>2)</sup>
- with switching condition monitoring and wiper 2) 3)

## Example: Order Number 45 / 3853.000A1 / 0

 For other rail manufacturers and rail types, please contact mayr<sup>®</sup> power transmission. 3) With wiper and switching condition monitoring, for Sizes 25, 45 and 55 the cable gland is only possible on the right.

Standard (on the left)

Cable gland

**Optional** (right)

0

1

- 2) With a wiper, connections  $m_3$  and  $m_4$  can no longer be used.
- 4) Possible operating modes: Please observe page 19



Technical Data					Size		
lechnical Data			25	35	45	55	65
Nominal holding force <sup>3) 4)</sup>	20 bar Type 3853	.0_1	2750	5000	7500	10000	15000
F <sub>N</sub> [N]	Toler- ance Type 3853	.0_1			0% / +150%		
Weight	[kg]		1.5	3.3	5.1	8.4	15.6
Operating pressure	[bar]				20 - 28		
Rigidity	[N/µm]		100	190	245	430	500
Pneumatic connection thread	m <sub>1</sub> , m <sub>3</sub> , m <sub>4</sub>		M5	1/8"	1/8"	1/8"	1/8"
Air consumption per switching procedure in standard litres at opening pressure	[NL]		0.15	0.30	0.44	0.60	0.65
Pressure Medium			Compressed	air with compre	essed air quality	acc. ISO 8573-	1 Class 7:4:4
Ambient Temperature	[°C]				-10 to +60		

3) Minimum holding force when the brake is not pressurised and when the profiled rail is dry or moistened with mineral oil.
4) At a switching frequency > 200.000, please reckon with a nominal holding force reduction of 20 %. The lower tolerance value must be considered here.

Dimensions			Size		
[mm]	25	35	45	55	65
Α	88	115	130	155	190
A <sub>1</sub>	70	100	120	140	170
В	14.7	21.7	27.7	35.7	43
<b>B</b> <sub>1</sub> <sup>5)</sup>	10	10	15	25	35
С	58	82	96	110	134
C,	75	92	98	125	152
D <sub>2</sub>	25	25	25	25	25
E	23	34	45	53	63
<b>m</b> <sup>6)</sup>	4 x M8	4 x M12	4 x M16	4 x M20	4 x M24
X		Dimensior	n depends on the rail ma	nufacturer	

5) Required minimum thickness of the customer-side mounting flange (Steel) 6) Tapped hole

Dimensions [m	nm]	
Rail manufacturer	Rail type	For details see page 18

For detailed information on selection, dimensioning, installation, initial operation and maintenance, please see the Installation and Operational Instructions.

We reserve the right to make dimensional and constructional alterations.



## **Profiled rail**

## **Dimensions Profiled Rail**

Dimensions	[m	nm	]								Size							
Rail			Rail type			25					35					45		
manufacturer				E,	<b>E</b> <sub>2</sub>	D	<b>D</b> <sub>1</sub>	F	E,	E <sub>2</sub>	D	<b>D</b> <sub>1</sub>	F	E,	E <sub>2</sub>	D	<b>D</b> <sub>1</sub>	F
		0	TSX-E	22.3	14.6	44.3	4.1	1	30	21.5	57	6.3	1	38	27	68.5	9.5	1
INA	Α	1	TKSD	21.7	16	43.7	3.5	1	29.7	26.8	56.7	6.0	1	37.2	34.3	67.7	8.7	1
		2	TKVD	18.7	14.5	43.7	3.5	4	27	22.2	56	5.3	3	34.2	29.6	67.2	8.2	3.5
		0	R1805/6/7, R1845/6/7	23.4	13	45.4	5.2	1	30.8	21	57.8	7.1	1	38.8	25	69.3	10.3	1
Bosch	В	1	R1605/6/7, R1645/7, R2045/7	24.2	13.8	46.3	6.1	1	31.9	23.5	58.9	8.2	1	39.9	29	70.3	11.3	1
Schneeberger	С	0	MR	24.5	15	46.5	6.3	1	32.0	21	59	8.2	1	40	29	70.5	11.5	1
HIWIN	D	0	RG	23.6	14.7	45.6	5.4	1	30.2	22	57.2	6.5	1	38	30	68.5	9.5	1
	U	1	HG	22	15.8	44	3.8	1	29	23.8	56.0	5.3	1		not	availa	able	
тнк	Е	0	SRG	23	15	45	4.8	1	30	23	57	6.3	1	37	32	69	10	2.5
THK	-	1	SHS	20	17.6	42.5	3.3	1.5	26	27	54.5	3.8	2.5	32	37.5	66	7	4.5
Rollon	F	0	MR	22	15.2	44	3.8	1	29	25	56	6	1	38	34	68.5	9.5	1
NSK	G	0	RA	24	13	46	5.8	1	31	21.4	58	7.3	1	38	28.5	68.5	9.5	1
NTN-SNR	H	0	BG/LGB	19.2	17.6	42.2	2	2	26	27	54.5	3.8	2.5	31.1	37.5	65	6	4.4
ΙΚΟ	J	0	LRX/MX	24.5	13.8	46.5	6.3	1	32	20	59	8.3	1	38	28	68.5	9.5	1
EWELLIX		0	LLU	24.3	15	46.3	6.1	1	32	21	59	8.3	1	39.8	29	70.3	11.3	1
	Μ	1	LLR	24.2	16.9	46.2	6	1	31.8	24.9	58.8	8.1	1	39.8	33	70.3	11.3	1
Other rail manufa	ict	ure	ers and rail types on reque	est														

Dimensions	[n	nn	ז]					Si	ze				
Rail			Rail type			55					65		
manufacturer				E,	<b>E</b> <sub>2</sub>	D	<b>D</b> <sub>1</sub>	F	E,	E <sub>2</sub>	D	D <sub>1</sub>	F
		0	TSX-E	45	31.8	83.8	11.5	1	53.8	38.2	97.5	10.8	1
INA	A	1	TKSD		not	availa	ıble			no	t availa	ble	
		2	TKVD	41.5	35.8	85.0	12.7	5.7		no	t availa	ble	
		0	R1805/6/7, R1845/6/7	47.6	31	86.4	14.1	1	57.9	36.2	101.6	14.9	1
Bosch	В	1	R1605/6/7, R1645/7, R2045/7	47.9	34.6	86.7	14.4	1	59.9	40	103.5	16.8	1
Schneeberger	С	0	MR	48	35	86.8	14.5	1	58	43	101.7	15	1
HIWIN	D	0	RG	44	38	82.8	10.5	1	53	44	96.7	10	1
	U	1	HG		not	availa	ıble			no	t availa	ble	
тнк	Е	0	SRG	43	38	81.8	9.5	1	54	45	99.2	12.5	2.5
INK	E	1	SHS	38	38	78	5.7	2.2	53	49	96.7	10	1
Rollon	F	0	MR	38	42	78.8	6.5	3		not	t availa	ble	
NSK	G	0	RA	43.5	30.8	83.5	11.2	2.2	55	35	100.2	13.2	2.5
NTN-SNR	Н	0	BG/LGB	38	43	78	5.7	2.2		no	t availa	ble	
ΙΚΟ	J	0	LRX/MX	43	32	81.8	9.5	1	56	40	99.7	13	1
EWELLIX	м	0	LLU	47.8	35	86.6	14.3	1	55	43	99.8	13	2
	IVI	1	LLR		not	availa	ıble			not	t availa	ble	
Other rail manuf	ac	ture	ers and rail types on reque	est									

For detailed information on selection, dimensioning, installation, initial operation and maintenance, please see the Installation and Operational Instructions.

We reserve the right to make dimensional and constructional alterations.



## **Profiled rail**

## **Clamping unit**

Type 380 clamp	oing	g unit	Size							
Rail manufacturer		Rail type	25	35	45	55	65			
INA A	0 1 2	TSX-E TKSD TKVD								
Bosch B	0 1	R1805/6/7, R1845/6/7 R1605/6/7, R1645/7, R2045/7								
Schneeberger C	0	MR								
HIWIN D	0 1	RG HG								
тнк е	0 1	SRG SHS								
Rollon F	0	MR								
NSK G	0	RA								
NTN-SNR H	0	BG/LGB								
IKO J	0	LRX/MX								
EWELLIX M	0 1	LLU LLR								

#### Possible operating modes:

- Static clamping
   Sporadic EMERGENCY STOP brakings
  - STOP brakings
  - Static clamping

## Brake unit

Type 381 bra	ke	un	iit			Size		
Rail manufacturer			Rail type	25	35	45	55	65
		0	TSX-E					
INA	A	1	TKSD					
		2	TKVD					
		0	R1805/6/7, R1845/6/7					
Bosch	В	1	R1605/6/7, R1645/7, R2045/7					
Schneeberger	С	0	MR					
HIWIN	D	0	RG					
		1	HG	_				
ТНК	Е	0	SRG					
		1	SHS					
Rollon	F	0	MR					
NSK	G	0	RA					
NTN-SNR	Н	0	BG/LGB					
IKO	J	0	LRX/MX					
EWELLIX	М	0	LLU					
	IVI	1	LLR					

#### Possible operating modes:

Static clamping

 Dynamic braking
 Sporadic EMERGENCY STOP brakings

## **Profiled rail requirements**

*mayr*<sup>®</sup> power transmission recommends the use of profiled rails from approved rail manufacturers.

When using other profiled rails the following applies:

±0.02 mm
Ra <0.8 μm
≥400 N/mm² (z. B. C45)
≤0.01 mm
≤0.01 mm

Friction value reducing residues on the profiled rail must be avoided.

Danger of load crashes.

Table: Profiled rail requirements



# Pressure booster for ROBA®-guidestop high pressure, pneumatic

## **Highlights and Advantages**

In the majority of cases, the available pressure in the compressed air system is not sufficient to operate the ROBA<sup>®</sup>-guidestop Type 3852/3853 with a pressure of 20 bar. One option is a general increase of system pressure which, however, results in high expenses and energy costs. A solution to this problem is the use of a pressure booster at exactly the location in the system where the increased pressure is required.

The pressure booster pneumatically increases the pressure available in the system to the required operating pressure of the ROBA®-guidestop in a purely mechanical way and without external use of power.

- Specific pressure increase in front of the individual brake
- No energy consumption after reaching the output pressure
- No electrical installation necessary
- □ Simple, safe and economic operating mode
- No need to invest in a high pressure grid of your own or in a decentralized separate compressor unit

#### Pressure booster - Designs:

- Pressure booster on plate ready to connect
- Pressure booster in housing ready to connect (noise reduced 65 dB(A))

Output pressure Pressure booster Input pressure







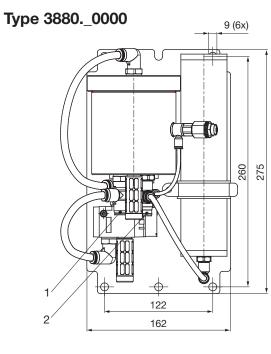


Fig. 7: Pressure booster on the plate

Fig. 8: Pressure booster in the housing



# Pressure booster for ROBA®-guidestop high pressure, pneumatic



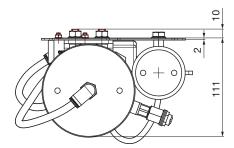


Fig. 9: Type 3880.00000

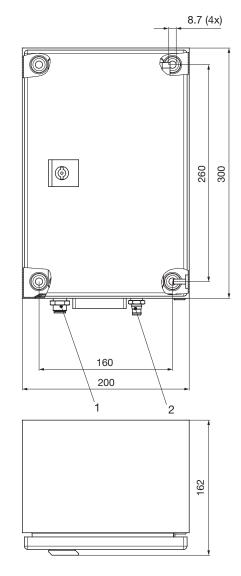
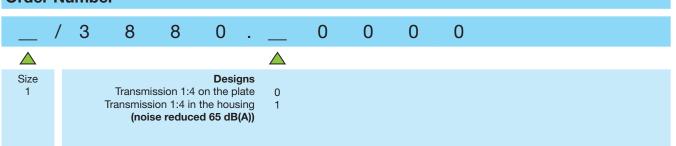


Fig. 10: Type 3880.10000

Item	Name
1	Connection input pressure
2	Connection output pressure

## **Order Number**



Example: Order number 1 / 3880.00000



Technical Data			Size	
			1	
Weight	Type 3880.00000	[kg]	9.3	
weight	Type 3880.10000	[kg]	14.5	
Input pressure	max.	[bar]	7	
Output pressure	max.	[bar]	28	
Transmission ratio			1:4	
Connection input pressure	Connection Outer diameter Ø		8 mm	
Connection output pressure	hose		6 mm	
Pressure Medium			Compressed air quality acc. ISO 8573-1 Class 7:4:4	
Storage volume		[L]	0.3	
Ambient Temperature		[°C]	-10 to +50	
Flow rate		[L/min]	1.2	

## **Technical Explanations**

## State of Delivery

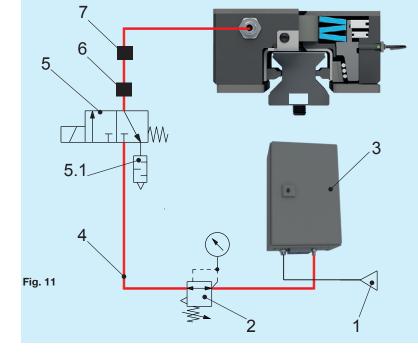
The **Pressure booster** is ready for installation. For operation, the Pressure booster must be connected with the **ROBA®-guidestop** using a 3/2-directional control valve and a hose.

## Number of Brakes per Pressure Booster

Number of attachable brakes by size and type for a max. opening time of 1 second.

	Number of brakes <sup>1)</sup>				
Size	3852	3853			
25	2	4			
35	2	4			
45	1	2			
55	1	1			
65	-	-			

1) Installing several brakes as stated in the Table is possible. As a result, the max. opening time increases.



Item	Name
1	Pressure source
2	Pressure regulator valve with pressure gauge (installation in the feed line also possible)
3	Pressure booster
4	Hose for high pressure
5	3/2-directional control valve high pressure (installation as near to the brake as possible)
5.1	Silencer
6	Pressure switch: Switching point <0.5 bar (brake closed) • Brake must not be pressurised
7	<ul> <li>Pressure switch: Min. operating pressure (brake opened)</li> <li>Minimum operating pressure must be used <ul> <li>In case of pressure fluctuations</li> <li>In case of pressure drop e.g. leakages</li> </ul> </li> </ul>

i

The pressure booster for the ROBA®-guidestop must have an external connection with the brake ensured via a 3/2-directional control valve.

For connection components recommended by mayr® power transmission (3/2-directional control valve, hose, etc.), please contact mayr® power transmission.

Before initial operation, please read and observe the respective Installation and Operational Instructions.

Controls (Fig. 11)



# **ROBA®-guidestop hydraulic**

## **Technical Explanations**

## State of Delivery

ROBA®-guidestop brakes are manufacturer-assembled ready for installation and set to the nominal holding force stipulated in the order.

Before initial operation, please read and observe the respective Installation and Operational Instructions.

## **Function**

The spring-loaded, enclosed ROBA®-guidestop (Type 384\_.0\_0\_ \_) , which can be opened hydraulically, clamps a profiled rail steplessly and backlash-free.

Due to the spring-loaded system, the fail-safe principle is guaranteed, and the ROBA®-guidestop works as a safety brake. For the required operating pressure, please see Table "Technical Data". The max. sliding speed is 2 m/s.

## **Maintenance/Switching Frequency**

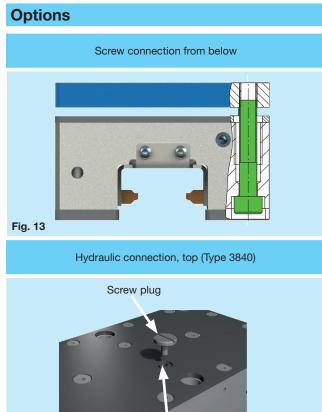
The ROBA®-guidestop is designed for a switching frequency of 200,000 switchings (higher switching frequencies available on request).

The ROBA®-guidestop is largely maintenance-free.

The profiled rail must be checked regularly (at least every 6 months) for contamination with friction value-reducing materials; it must be cleaned, if necessary.

In case of major accumulation of dust and dirt, or in extreme ambient conditions, special maintenance work is required.

(Please contact mayr® power transmission).



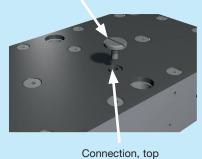


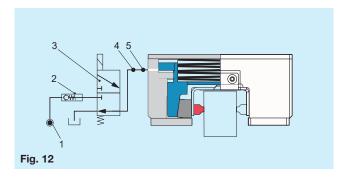
Fig. 14

## Controls (Fig. 12)

The company mayr®power transmission recommends hydraulic controls as shown in Fig. 10. During every operational movement of the profiled rail, the 3/2-way valve is electrically switched and the brake opened.

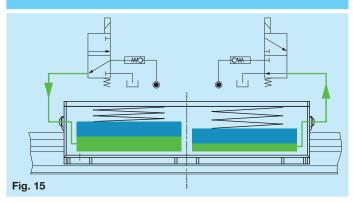
#### **Recommendation:**

- Pressure fluctuations can be reduced through a non-return val-•
- ve. In order to guarantee fastest possible switching of the brake, the largest possible line diameter should be used in the area of the return flow line. Furthermore, do not install any choke valves in this area and keep the hydraulic lines between the brake and the valve as short as possible!



Item	Name
1	Pressure source
2	Non-return valve (in case of pressure fluctuations)
3	3/2-directional control valve
4	Pressure switch: Switching point <0.5 bar (brake closed)  • Brake must not be pressurised
5	<ul> <li>Pressure switch: Min. operating pressure (brake opened)</li> <li>Minimum operating pressure must be used</li> <li>In case of pressure fluctuations</li> <li>In case of pressure drop e.g. leakages</li> </ul>

#### Redundant design (dual circuit brake)





# **ROBA<sup>®</sup>-guidestop pneumatic**

## **Technical Explanations**

## State of Delivery

**ROBA®-guidestop** brakes are manufacturer-assembled ready for installation and set to the nominal holding force stipulated in the order.

# Before initial operation, please read and observe the respective Installation and Operational Instructions.

#### Function

The spring-loaded, enclosed ROBA®-guidestop (Type 385\_.0\_ \_ \_), which can be opened pneumatically, clamps a profiled rail steplessly and backlash-free.

The ROBA®-guidestop (Type 3850/1.1\_\_\_\_), which can be opened hydraulically, clamps and brakes a profiled rail steplessly and backlash-free.

Due to the spring-loaded system, the fail-safe principle is guaranteed, and the **ROBA®-guidestop** works as a safety brake. For the required operating pressure, please see Table "Technical Data". The max. sliding speed is 2 m/s.

#### Maintenance/Switching Frequency

The **ROBA®-guidestop** is designed for a switching frequency of 2,000,000 switchings (higher switching frequencies available on request).

The **ROBA®-guidestop** is largely maintenance-free.

The profiled rail must be checked regularly (at least every 6 months) for contamination with friction value-reducing materials; it must be cleaned, if necessary.

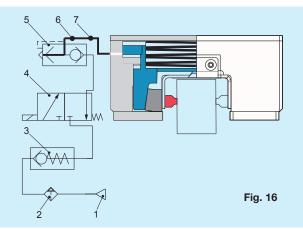
In case of major accumulation of dust and dirt, or in extreme ambient conditions, special maintenance work is required.

(Please contact mayr® power transmission).

## Controls (Fig. 16)

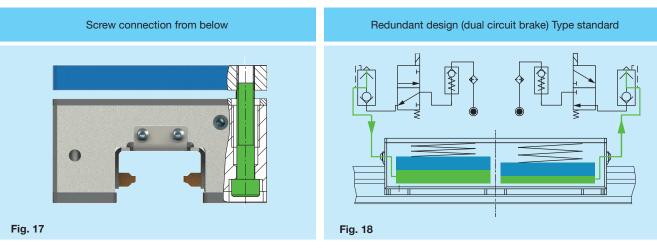
The piston space is filled with compressed air, thus suspending the spring force. In case of power failure, the compressed air in the piston space is diverted by the 3/2-directional control valve. The spring force has an effect on the clamping element. The profiled rail clamps/ brakes reliable and safely.

The mayr $^{\ensuremath{\circledast}}$  power transmission recommends the following pneumatic control units.



Item	Name
1	Pressure source
2	Maintenance unit
3	Non-return valve (in case of pressure fluctuations)
4	3/2-directional control valve (installation as near to the brake as possible)
5	Quick-action ventilating valve (switching time-related application)
6	Pressure switch: Switching point <0.5 bar (brake closed)  • Brake must not be pressurised
7	<ul> <li>Pressure switch: Min. operating pressure (brake opened)</li> <li>Minimum operating pressure must be used</li> <li>In case of pressure fluctuations</li> <li>In case of pressure drop e.g. leakages</li> </ul>

## Options





## **Brake Dimensioning**

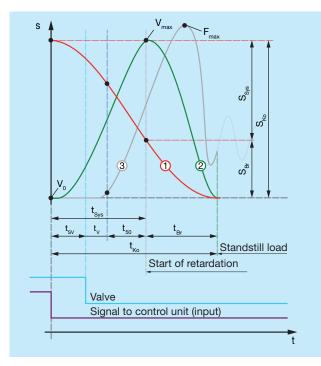


Diagram 1: Switching / Braking Times / Distances

#### Name

1		Distance
2		Speed
3		Axial force
	[°]	Angular position 0° (horizontal) to 90° (vertical)
a <sub>B</sub>	[m/s <sup>2</sup> ]	Acceleration of the downward-moving load, dependent on the angular position
a	[m/s <sup>2</sup> ]	Retardation
g	[m/s <sup>2</sup> ]	Gravitational acceleration (9.81 m/s <sup>2</sup> )
F <sub>Br</sub>	[N]	Braking force for dynamic calculation
F <sub>erf.</sub>	[N]	Required holding force
F <sub>N</sub>	[N]	Nominal holding force (minimum holding force)
F <sub>NGes</sub>	[N]	Total nominal holding force (one or more brakes)
F <sub>max</sub>	[N]	Maximum holding force
m	[kg]	Load mass
S <sub>Br</sub>	[m]	<b>Braking distance:</b> Distance from the beginning of the retardation up to the standstill of the load
S <sub>Sys</sub>	[m]	<b>System distance:</b> Distance travelled by the load until the retardation begins.
S <sub>Ko</sub>	[m]	<b>Stopping distance:</b> Distance from the signal interruption up to standstill of the load
t <sub>50</sub>	[s]	Brake switching time
t <sub>v</sub>	[s]	Valve switching time
t <sub>sv</sub>	[s]	Switching time control unit (signal processing time)
t <sub>sys</sub>	[s]	System switching time
t <sub>Br</sub>	[s]	Brake braking time
t <sub>Ko</sub>	[s]	<b>Stopping time:</b> Time from the signal interruption up to standstill of the load
V <sub>0</sub>	[m/s]	Initial speed
V <sub>max</sub>	[m/s]	Maximum speed
	·	

### General

F

When selecting the brake, the nominal holding force must be greater or equal to the required holding force.

$$F_{N} \geq F_{erf.}$$
 [N]

#### Dimensioning for dynamic braking (EMERGENCY STOP)

For safety reasons, at least the weight load of the masses to be held +100 % reserve must be provided.

The larger the ratio of the nominal holding force to the required holding force, the shorter the stopping distance (for the same technical conditions)

The minimum required holding force can be calculated with the following formula:

 $F_{\rm eff.} = m \times g \times 2 \times \mathbf{S}$  [N]

#### Dimensioning for static holding (clamping)

We recommend to provide at least the weight force of the mass to be held +50 % reserve.

The minimum required holding force can be calculated with the following formula:

	_	m×a×	1 25 x	Inspection	faktor <sup>2)</sup> x	S	[N]
erf	=	III x y x	1,20 X	Inspection	Taktor - x	3	[IN]

Safatu faatar <b>S</b>	Greasing Profiled rail		
Safety factor S	Grease 3)	Mineral oil	
Type 380	2	1	
Type 381	1.5	1	

The stopping distance / stopping time of the load to be braked is strongly dependent on the following influences:

- Switching time control unit (signal processing)
  - )) Cuuitabiaa timaa of the oo
- Switching time of the control valveSwitching time of the brake
- Cross-section and length of the lines

The larger the sum of the switching times, the later the retardation of the load occurs (due to longer periods of acceleration). The stopping distance / the stopping time becomes longer (with constant holding force).

1) Without cyclical brake test

 Cyclical brake test with inspection factor. The Inspection factor must be determined by the user with the applicable standards. 1.25 × inspection factor must result in at least 1.5. mayr<sup>®</sup> power transmission recommends ≥1.3 as inspection factor

3) Friction value reducing residues on the profiled rail must be avoided

Please ensure sufficient dimensioning of the components of your system which may be placed under heavy loads during acceleration / retardation as a result of dynamic braking actions.

If you have any questions, please contact mayr<sup>®</sup> power transmission.



## Calculation Example (Dynamic Braking)

$\Box$ = 90° (vertical axis)
m = 700 kg
$V_0 = 0.5 \text{ m/s}$
t <sub>v</sub> = 0.016 s
t <sub>sv</sub> = 0.020 s

1. Pre-selection of braking force				
F <sub>erf.</sub>	=	m x g x 2		[N]
$F_{erf.}$	=	700 x 9.81 x 2	= 13734	[N]

Selected: ROBA<sup>®</sup>-guidestop Size 45, Type 3840.1\_0\_ \_ Nominal holding force  $F_N = 15000 N$ (from Table "Technical Data")

## **Stopping distance**

			-				
S <sub>Ko</sub>	=	$\mathbf{S}_{_{\mathrm{Br}}} + \mathbf{S}_{_{\mathrm{Sys}}}$	=	0.0	77 + 0.079	= 0.156	[m]
Sto	ppir	ng time					
t <sub>Ko</sub>	=	$\mathbf{t}_{_{\mathrm{Br}}}$ + $\mathbf{t}_{_{\mathrm{Sys}}}$		=	0.115 + 0.086	= 0.201	[s]
t <sub>Br</sub>	=	V <sub>max</sub> F <sub>NGes</sub>	a <sub>B</sub>	- =	<u>1.34</u> <u>15000</u> 700 - 9.81	— = 0.115	[S]
Dat	ord	m ation <i>(</i> for c	wot	. m	/00		

Retar	rdation (for	systen	n aimension	ling)		
	F <sub>NGes</sub> × 2.5		$15000 \times 2.5$	0.01	= 43.76	[m /o <sup>2</sup> ]
a <sub>v</sub> =	m	-g =	700	- 9.81	= 43.70	[11/5]
Load	-	a <sub>v</sub>	43.76		= 4.46	[g]
Load	_	g	9.81		0	[9]

Checking the selected brake size

Acc	ele	ration of the load			
a <sub>B</sub>	=	$g x sin(\beta) = 9.81 x sin(90^{\circ})$	= 9.81 [m/s <sup>2</sup> ]		
Sys	tem	distance			
$\mathbf{S}_{Sys}$	=	$V_0 x t_{Sys} + a_B x t_{Sys}^2 x 0.5$		[m]	
${\sf S}_{\scriptscriptstyle {\sf Sys}}$	=	0.5 x 0.086 + 9.81 x 0.0862 x 0.5	= 0.079	[m]	
tsys	=	$t_{50} + t_v + t_{SV} = 0.050 + 0.016 + 0.02$	= 0.086	[s]	
Bra	king	distance			
S <sub>Br</sub>	=	$\frac{\mathbf{V}_{\text{max}}^2}{2 \times \left(\frac{\mathbf{F}_{\text{NGes}}}{\mathbf{m}} - \mathbf{a}_{\text{B}}\right)} = \frac{1.34^2}{2 \times 11.62}$	= 0.077	[m]	
${\rm V}_{\rm max}$	=	$V_0 + a_B x t_{Sys} = 0.5 + 9.81 x 0.086$	= 1.34 [	m/s]	

## **3. Friction work** (Type 3840.1\_0\_ \_)

Frie	ction	work per braking action	
$\mathbf{Q}_{r}$	=	m x $a_B x S_{Br} + 0.5 x m x V_{max}^2$	[J]
$Q_r$	=	700 x 9.81 x 0.077 + 0.5 x 700 x 1.342	[J]
Q,	=	1157	[J]

#### Number of braking actions up to wear end

$$Z_{zul.} = \frac{Q_{rges}}{Q_{r}}$$

Friction Work and Switching Times (Type 38	Size					
Friction work and Switching Times (Type So	35	45	55	65		
Permitted total friction work up to wear end <sup>2)</sup>	On request					
Maximum permitted friction work per braking action <sup>2)</sup> Q <sub>rzul.</sub> [J]				On request		
Brake switching time		[s]	0.040	0.050	0.050	0.060

#### **ROBA®-guidestop pneumatic**

**ROBA®-guidestop hydraulic** 

Friction Work and Switching Times (Type 385 $\_$ .1 $\_$ $\_$ ) <sup>1) 3)</sup>			Size			
Friction work and Switching Times (Type So	25	35	45	55		
Permitted total friction work up to wear end <sup>2)</sup> Q <sub>r ges.</sub> [10 <sup>6</sup> J] On request				quest		
Maximum permitted friction work per braking action <sup>2)</sup> Q <sub>r zul.</sub> [J]			On request			
Brake switching time Type 3850/1.0_0_		4 [9]	0.030	0.035	0.035	0.035
Brake switching time Type 3852/3.0_0 [s]			On request			

1) For friction work Type 38\_\_.0\_\_\_\_, please contact *mayr*<sup>®</sup> power transmission. The switching times also apply for Type 38\_\_.0\_\_\_

2) For higher friction work / total friction work, please contact *mayr®* power transmission.

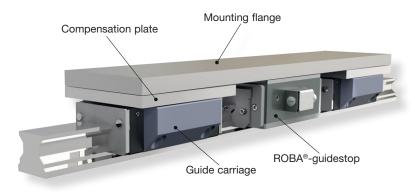
3) Switching times are influenced by line length, operating pressure and wear



A quick-action ventilating valve must be used for the stated switching times of the pneumatic ROBA®-guidestop.



## Installation Example



The ROBA®-guidestop profiled rail brake does not assume any guidance function and must only be used in combination with guide carriages.

Mounting flange and compensation plate for mounting the guide carriages are available on request.

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You can find the complete contact details for the representative responsible for your area in the Contact section at www.mayr.com



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