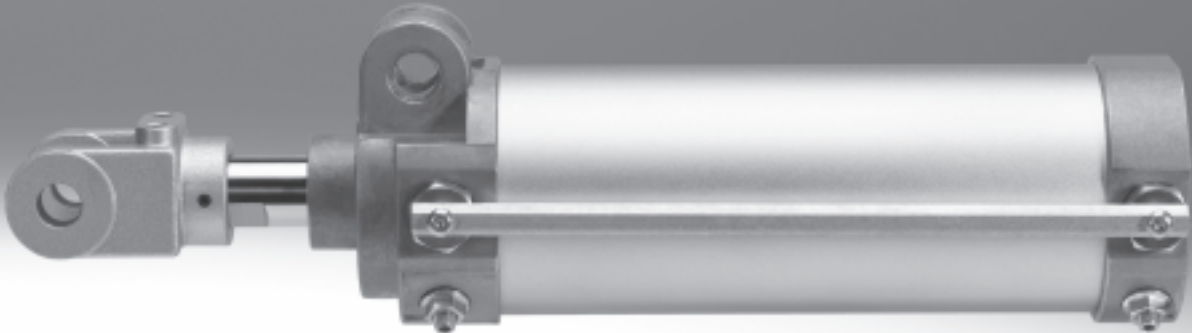


Hinge cylinders DW



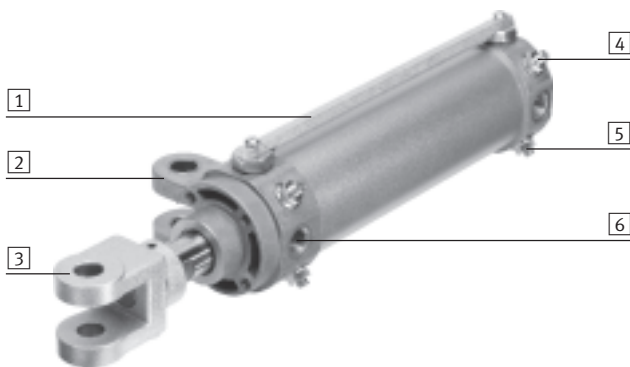
# Hinge cylinders DW

Key features

## At a glance

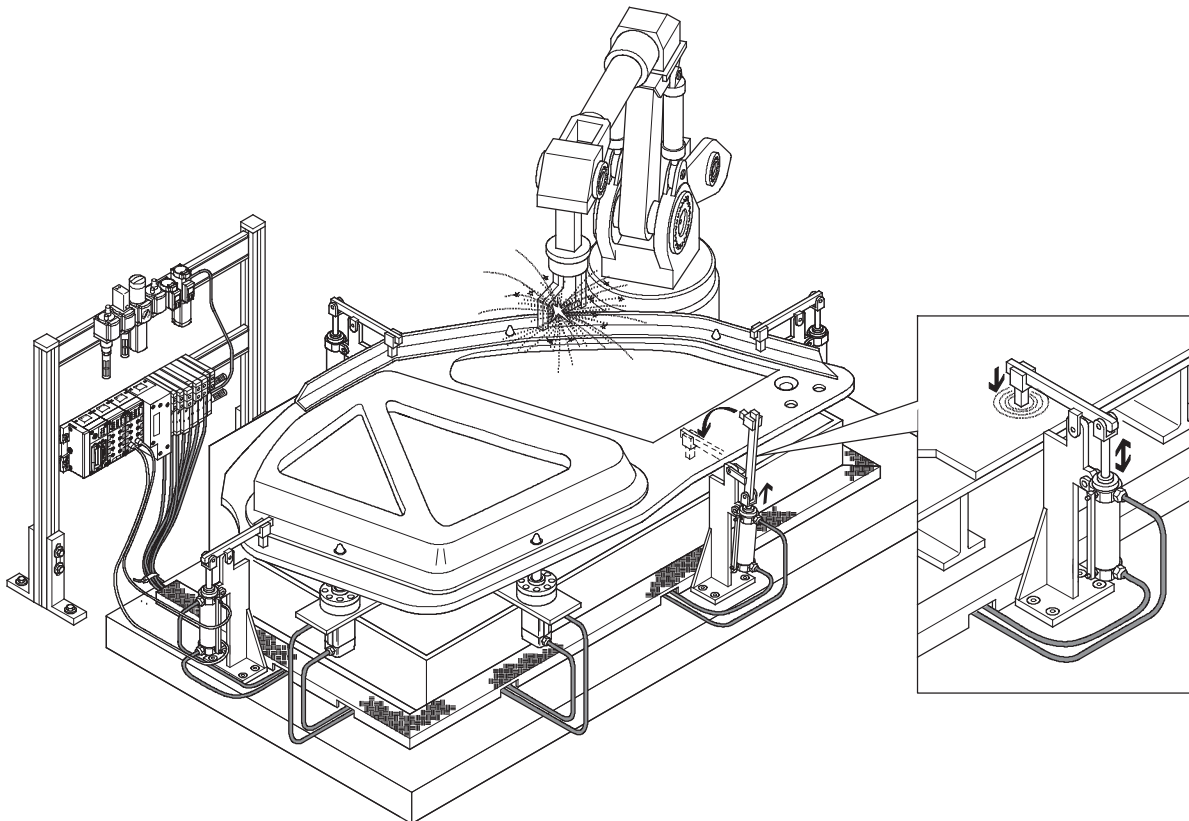
- Hinge cylinder for clamping components during the welding process
- Easy assembly thanks to swivel bearing on the bearing cap
- Integrated flow control
- Integrated end-position cushioning
- Rod wiper seal to protect against welding spatter
- Asian automotive standard for car body production

## The technology in detail



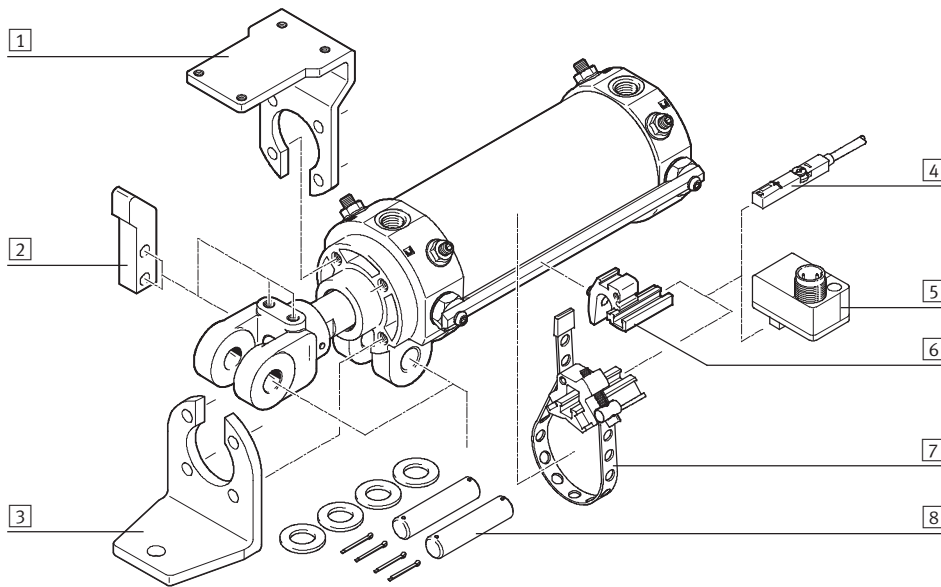
- 1 Different options for sensing the piston rod position:
  - Via sensor strip (→ Figure)
  - Via mounting kit SMBR with proximity sensor SME-/SMT-8M or SMTSO-8E
  - Via external proximity sensor using a switch lever
- 2 Swivel bearing on the cylinder. The fork gaps of the rod clevis and swivel bearing are identical
- 3 Different rod clevis gaps can be selected
- 4 Integrated flow control
- 5 Integrated end-position cushioning
- 6 Pneumatic connection, either:
  - Via Rc or G thread
  - Connection options on three sides (e.g. by modifying the sensor strip)

## Use as a clamping cylinder



# Hinge cylinders DW

Peripherals overview



Included in the scope of delivery of the drive:  
 • Item 8

Accessories			
Type	Brief description	→ Page/Internet	
1	Mounting bracket TBH	For mounting external proximity sensors	12
2	Switch lever KTH	For sensing the piston rod position via external proximity sensors	12
3	Foot mounting HNH	For mounting the cylinder	12
4	Proximity sensor SME-/SMT-8	Flat proximity sensor for sensing the piston rod position	13
5	Proximity sensor SMTSO-8E	Welding field-resistant proximity sensor for sensing the piston rod position	13
6	Mounting SMBZ	For mounting the proximity sensor SME-/SMT-8 or SMTSO-8E on the sensor strip	14
7	Mounting kit SMBR	For mounting the proximity sensor SME-/SMT-8 or SMTSO-8E on the cylinder	14
8	Mounting kit DAMD	<ul style="list-style-type: none"> <li>• For mounting the drive and attachments on the rod clevis</li> <li>• The scope of delivery of the drive includes 2 bolts, 2 retaining pins and 4 washers</li> </ul>	13

# Hinge cylinders DW

Type codes

DW – A – 50 – 50 – Y – A – G

Type	
DW	Hinge cylinder

Rod clevis gap [mm]	
	28
A	16
B	19.5
C	16.5

Piston Ø [mm]	
---------------	--

Stroke [mm]	
-------------	--

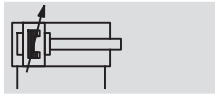
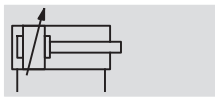
End of piston rod	
Y	With rod clevis

Position sensing	
	No magnet
A	Via magnet and sensor strip
AB	Via magnet


Pneumatic connection	
	Rc thread
G	G thread

## Hinge cylinders DW

Technical data



 Diameter  
50 ... 80 mm

 Stroke length  
10 ... 200 mm



General technical data				
Piston Ø		50	63	80
Pneumatic connection		G $\frac{1}{4}$ , Rc $\frac{1}{4}$	G $\frac{1}{4}$ , Rc $\frac{1}{4}$	G $\frac{3}{8}$ , Rc $\frac{3}{8}$
Piston rod thread		M16x1.5		M20x1.5
End of piston rod		Male thread with rod clevis		
Stroke	Standard	[mm]	50, 75, 100, 125, 150	
	Variable	[mm]	10 ... 200	
Rod clevis gap		[mm]	16, 16.5, 19.5	28
Design		Piston rod with rod clevis		
		Swivel mounting on the bearing cap		
		Cylinder barrel		
		Piston		
Mode of operation		Double-acting		
		Pushing and pulling		
Type of mounting		Via swivel mounting on the bearing cap		
		Via accessories		
Speed control		Integrated flow control at both ends		
Mounting position		Any		
Position sensing		Via proximity sensor		
Cushioning		Pneumatic cushioning, adjustable at both ends		
Cushioning length		[mm]	20	30

Operating and environmental conditions	
Operating medium	Filtered compressed air, lubricated or unlubricated
Operating pressure	[bar] 1 ... 10
Ambient temperature	[°C] -10 ... +60

Weight [g]				
Piston Ø		50	63	80
Basic weight with 0 mm stroke		1,338	1,600	4,185
Additional weight per 10 mm stroke		37	42	65
Moving load with 0 mm stroke		664	741	1,651
Additional weight per 10 mm stroke		25	25	39

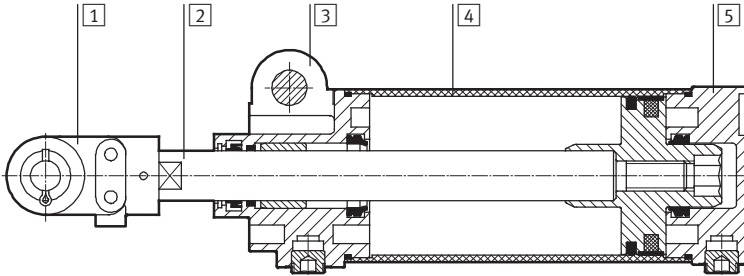
# Hinge cylinders DW

Technical data

Forces [N] and impact energy [J]			
Piston $\varnothing$	50	63	80
Theoretical force at 6 bar, advancing	1,178	1,870	3,016
Theoretical force at 6 bar, retracting	990	1,682	2,721
Impact energy in the end positions	0.7	1.3	1.8

## Materials

Sectional view

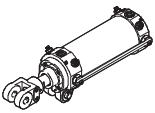


Hinge cylinder	
1	Rod clevis Cast steel
2	Piston rod Hard chromium-plated tempered steel
3	Bearing cap with mounting Die-cast aluminium
4	Cylinder barrel Anodised wrought aluminium alloy
5	Cover Anodised die-cast aluminium
-	Seals Nitrile rubber
Note on materials RoHS-compliant	



# Hinge cylinders DW

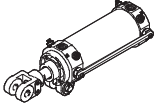
Technical data

Ordering data – With Rc thread									
	Piston Ø [mm]	Stroke [mm]	Rod clevis gap 16 mm		Rod clevis gap 19.5 mm		Rod clevis gap 16.5 mm		
			Part No.	Type	Part No.	Type	Part No.	Type	
	50	Without magnet							
		50	549543	DWA-50-50-Y	549553	DWB-50-50-Y	558087	DWC-50-50-Y	
		75	549544	DWA-50-75-Y	549554	DWB-50-75-Y	558088	DWC-50-75-Y	
		100	549545	DWA-50-100-Y	549555	DWB-50-100-Y	558089	DWC-50-100-Y	
		125	549546	DWA-50-125-Y	549556	DWB-50-125-Y	558090	DWC-50-125-Y	
		150	549547	DWA-50-150-Y	549557	DWB-50-150-Y	558091	DWC-50-150-Y	
		10 ... 200	555710	DWA-50-...-Y	555713	DWB-50-...-Y	558137	DWC-50-...-Y	
		With magnet and sensor strip							
		50	549548	DWA-50-50-Y-A	549558	DWB-50-50-Y-A	558092	DWC-50-50-Y-A	
		75	549549	DWA-50-75-Y-A	549559	DWB-50-75-Y-A	558093	DWC-50-75-Y-A	
		100	549550	DWA-50-100-Y-A	549560	DWB-50-100-Y-A	558094	DWC-50-100-Y-A	
		125	549551	DWA-50-125-Y-A	549561	DWB-50-125-Y-A	558095	DWC-50-125-Y-A	
		150	549552	DWA-50-150-Y-A	549562	DWB-50-150-Y-A	558096	DWC-50-150-Y-A	
		10 ... 200	555711	DWA-50-...-Y-A	555714	DWB-50-...-Y-A	558138	DWC-50-...-Y-A	
		With magnet							
		50	549743	DWA-50-50-Y-AB	549707	DWB-50-50-Y-AB	558097	DWC-50-50-Y-AB	
		75	549744	DWA-50-75-Y-AB	549708	DWB-50-75-Y-AB	558098	DWC-50-75-Y-AB	
		100	549745	DWA-50-100-Y-AB	549709	DWB-50-100-Y-AB	558099	DWC-50-100-Y-AB	
	125	549746	DWA-50-125-Y-AB	549710	DWB-50-125-Y-AB	558100	DWC-50-125-Y-AB		
	150	549706	DWA-50-150-Y-AB	549711	DWB-50-150-Y-AB	558101	DWC-50-150-Y-AB		
	10 ... 200	555712	DWA-50-...-Y-AB	555715	DWB-50-...-Y-AB	558139	DWC-50-...-Y-AB		
	63	Without magnet							
		50	549563	DWA-63-50-Y	549573	DWB-63-50-Y	558102	DWC-63-50-Y	
		75	549564	DWA-63-75-Y	549574	DWB-63-75-Y	558103	DWC-63-75-Y	
		100	549565	DWA-63-100-Y	549575	DWB-63-100-Y	558104	DWC-63-100-Y	
		125	549566	DWA-63-125-Y	549576	DWB-63-125-Y	558105	DWC-63-125-Y	
		150	549567	DWA-63-150-Y	549577	DWB-63-150-Y	558106	DWC-63-150-Y	
		10 ... 200	555716	DWA-63-...-Y	555719	DWB-63-...-Y	558140	DWC-63-...-Y	
With magnet and sensor strip									
50		549568	DWA-63-50-Y-A	549578	DWB-63-50-Y-A	558107	DWC-63-50-Y-A		
75		549569	DWA-63-75-Y-A	549579	DWB-63-75-Y-A	558108	DWC-63-75-Y-A		
100		549570	DWA-63-100-Y-A	549580	DWB-63-100-Y-A	558109	DWC-63-100-Y-A		
125		549571	DWA-63-125-Y-A	549581	DWB-63-125-Y-A	558110	DWC-63-125-Y-A		
150		549572	DWA-63-150-Y-A	549582	DWB-63-150-Y-A	558111	DWC-63-150-Y-A		
10 ... 200		555717	DWA-63-...-Y-A	555720	DWB-63-...-Y-A	558141	DWC-63-...-Y-A		
With magnet									
50		549712	DWA-63-50-Y-AB	549730	DWB-63-50-Y-AB	558112	DWC-63-50-Y-AB		
75		549713	DWA-63-75-Y-AB	549732	DWB-63-75-Y-AB	558113	DWC-63-75-Y-AB		
100		549714	DWA-63-100-Y-AB	549733	DWB-63-100-Y-AB	558114	DWC-63-100-Y-AB		
125	549715	DWA-63-125-Y-AB	549734	DWB-63-125-Y-AB	558115	DWC-63-125-Y-AB			
150	549716	DWA-63-150-Y-AB	549735	DWB-63-150-Y-AB	558116	DWC-63-150-Y-AB			
10 ... 200	555718	DWA-63-...-Y-AB	555721	DWB-63-...-Y-AB	558142	DWC-63-...-Y-AB			



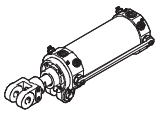
# Hinge cylinders DW

Technical data

Ordering data – With Rc thread			
	Piston Ø [mm]	Stroke [mm]	Rod clevis gap 28 mm
			Part No.    Type
	80	Without magnet	
		50	<b>557904</b> DW-80-50-Y
		75	<b>557905</b> DW-80-75-Y
		100	<b>557906</b> DW-80-100-Y
		125	<b>557907</b> DW-80-125-Y
		150	<b>557908</b> DW-80-150-Y
		10 ... 200	<b>557929</b> DW-80-...-Y
		With magnet and sensor strip	
		50	<b>557909</b> DW-80-50-Y-A
		75	<b>557910</b> DW-80-75-Y-A
		100	<b>557911</b> DW-80-100-Y-A
		125	<b>557912</b> DW-80-125-Y-A
		150	<b>557913</b> DW-80-150-Y-A
		10 ... 200	<b>557930</b> DW-80-...-Y-A
		With magnet	
		50	<b>557914</b> DW-80-50-Y-AB
		75	<b>557915</b> DW-80-75-Y-AB
		100	<b>557916</b> DW-80-100-Y-AB
		125	<b>557917</b> DW-80-125-Y-AB
		150	<b>557918</b> DW-80-150-Y-AB
		10 ... 200	<b>557931</b> DW-80-...-Y-AB

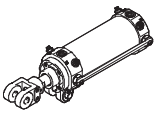
# Hinge cylinders DW

Technical data

Ordering data – With G thread								
	Piston Ø [mm]	Stroke [mm]	Rod clevis gap 16 mm		Rod clevis gap 19.5 mm		Rod clevis gap 16.5 mm	
			Part No.	Type	Part No.	Type	Part No.	Type
	50	Without magnet						
		50	565721	DWA-50-50-Y-G	565731	DWB-50-50-Y-G	572341	DWC-50-50-Y-G
		75	565722	DWA-50-75-Y-G	565732	DWB-50-75-Y-G	572342	DWC-50-75-Y-G
		100	565723	DWA-50-100-Y-G	565733	DWB-50-100-Y-G	572343	DWC-50-100-Y-G
		125	565724	DWA-50-125-Y-G	565734	DWB-50-125-Y-G	572344	DWC-50-125-Y-G
		150	565725	DWA-50-150-Y-G	565735	DWB-50-150-Y-G	572345	DWC-50-150-Y-G
		10 ... 200	565781	DWA-50-...-Y-G	565784	DWB-50-...-Y-G	572371	DWC-50-...-Y-G
		With magnet and sensor strip						
		50	565726	DWA-50-50-Y-A-G	565736	DWB-50-50-Y-A-G	572346	DWC-50-50-Y-A-G
		75	565727	DWA-50-75-Y-A-G	565737	DWB-50-75-Y-A-G	572347	DWC-50-75-Y-A-G
		100	565728	DWA-50-100-Y-A-G	565738	DWB-50-100-Y-A-G	572348	DWC-50-100-Y-A-G
		125	565729	DWA-50-125-Y-A-G	565739	DWB-50-125-Y-A-G	572349	DWC-50-125-Y-A-G
		150	565730	DWA-50-150-Y-A-G	565740	DWB-50-150-Y-A-G	572350	DWC-50-150-Y-A-G
		10 ... 200	565782	DWA-50-...-Y-A-G	565785	DWB-50-...-Y-A-G	572372	DWC-50-...-Y-A-G
		With magnet						
		50	565777	DWA-50-50-Y-AB-G	565762	DWB-50-50-Y-AB-G	572351	DWC-50-50-Y-AB-G
		75	565778	DWA-50-75-Y-AB-G	565763	DWB-50-75-Y-AB-G	572352	DWC-50-75-Y-AB-G
		100	565779	DWA-50-100-Y-AB-G	565764	DWB-50-100-Y-AB-G	572353	DWC-50-100-Y-AB-G
	125	565780	DWA-50-125-Y-AB-G	565765	DWB-50-125-Y-AB-G	572354	DWC-50-125-Y-AB-G	
	150	565761	DWA-50-150-Y-AB-G	565766	DWB-50-150-Y-AB-G	572355	DWC-50-150-Y-AB-G	
	10 ... 200	565783	DWA-50-...-Y-AB-G	565786	DWB-50-...-Y-AB-G	572373	DWC-50-...-Y-AB-G	
	63	Without magnet						
		50	565741	DWA-63-50-Y-G	565751	DWB-63-50-Y-G	572356	DWC-63-50-Y-G
		75	565742	DWA-63-75-Y-G	565752	DWB-63-75-Y-G	572357	DWC-63-75-Y-G
		100	565743	DWA-63-100-Y-G	565753	DWB-63-100-Y-G	572358	DWC-63-100-Y-G
		125	565744	DWA-63-125-Y-G	565754	DWB-63-125-Y-G	572359	DWC-63-125-Y-G
		150	565745	DWA-63-150-Y-G	565755	DWB-63-150-Y-G	572360	DWC-63-150-Y-G
		10 ... 200	565787	DWA-63-...-Y-G	565790	DWB-63-...-Y-G	572374	DWC-63-...-Y-G
		With magnet and sensor strip						
		50	565746	DWA-63-50-Y-A-G	565756	DWB-63-50-Y-A-G	572361	DWC-63-50-Y-A-G
75		565747	DWA-63-75-Y-A-G	565757	DWB-63-75-Y-A-G	572362	DWC-63-75-Y-A-G	
100		565748	DWA-63-100-Y-A-G	565758	DWB-63-100-Y-A-G	572363	DWC-63-100-Y-A-G	
125		565749	DWA-63-125-Y-A-G	565759	DWB-63-125-Y-A-G	572364	DWC-63-125-Y-A-G	
150		565750	DWA-63-150-Y-A-G	565760	DWB-63-150-Y-A-G	572365	DWC-63-150-Y-A-G	
10 ... 200		565788	DWA-63-...-Y-A-G	565791	DWB-63-...-Y-A-G	572375	DWC-63-...-Y-A-G	
With magnet								
50		565767	DWA-63-50-Y-AB-G	565772	DWB-63-50-Y-AB-G	572366	DWC-63-50-Y-AB-G	
75		565768	DWA-63-75-Y-AB-G	565773	DWB-63-75-Y-AB-G	572367	DWC-63-75-Y-AB-G	
100		565769	DWA-63-100-Y-AB-G	565774	DWB-63-100-Y-AB-G	572368	DWC-63-100-Y-AB-G	
125	565770	DWA-63-125-Y-AB-G	565775	DWB-63-125-Y-AB-G	572369	DWC-63-125-Y-AB-G		
150	565771	DWA-63-150-Y-AB-G	565776	DWB-63-150-Y-AB-G	572370	DWC-63-150-Y-AB-G		
10 ... 200	565789	DWA-63-...-Y-AB-G	565792	DWB-63-...-Y-AB-G	572376	DWC-63-...-Y-AB-G		

# Hinge cylinders DW

Technical data

Ordering data – With G thread			
	Piston Ø [mm]	Stroke [mm]	Rod clevis gap 28 mm
			Part No.    Type
	80	Without magnet	
		50	<b>565793</b> DW-80-50-Y-G
		75	<b>565794</b> DW-80-75-Y-G
		100	<b>565795</b> DW-80-100-Y-G
		125	<b>565796</b> DW-80-125-Y-G
		150	<b>565797</b> DW-80-150-Y-G
		10 ... 200	<b>565808</b> DW-80-...-Y-G
		With magnet and sensor strip	
		50	<b>565798</b> DW-80-50-Y-A-G
		75	<b>565799</b> DW-80-75-Y-A-G
		100	<b>565800</b> DW-80-100-Y-A-G
		125	<b>565801</b> DW-80-125-Y-A-G
		150	<b>565802</b> DW-80-150-Y-A-G
		10 ... 200	<b>565809</b> DW-80-...-Y-A-G
		With magnet	
		50	<b>565803</b> DW-80-50-Y-AB-G
		75	<b>565804</b> DW-80-75-Y-AB-G
		100	<b>565805</b> DW-80-100-Y-AB-G
		125	<b>565806</b> DW-80-125-Y-AB-G
		150	<b>565807</b> DW-80-150-Y-AB-G
		10 ... 200	<b>565810</b> DW-80-...-Y-AB-G

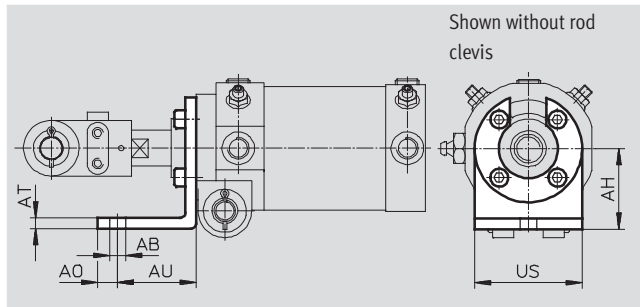
# Hinge cylinders DW

Accessories

## Foot mounting HNH

Material:  
Steel

Scope of delivery:  
4 screws

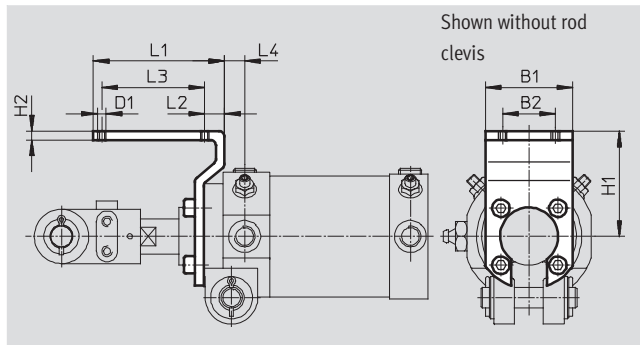


Dimensions and ordering data									
For $\varnothing$	AB $\varnothing$	AH	AO	AT	AU	US	Weight [g]	Part No.	Type
50, 63, 80	9	45	11	6	44	60	241	<b>549603</b>	<b>HNH-50/63/80</b>

## Mounting bracket TBH

Material:  
Steel

Scope of delivery:  
4 screws, short  
4 screws, long

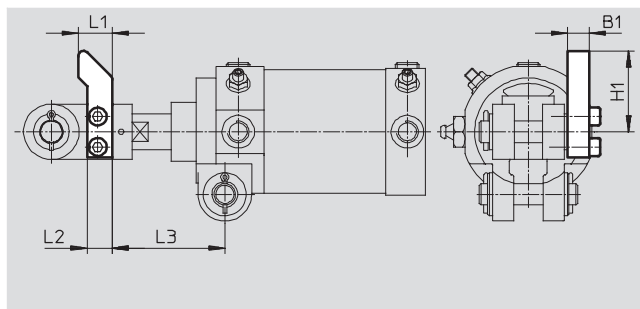


Dimensions and ordering data												
For $\varnothing$	B1	B2	D1	H1	H2	L1	L2	L3	L4	Weight [g]	Part No.	Type
50, 63, 80	50	30.2	M5	60	5	75	11.3	58.7	17	282	<b>549605</b>	<b>TBH-50/63/80</b>

## Switch lever KTH

Material:  
Steel


Scope of delivery:  
2 screws

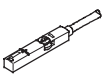

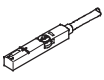


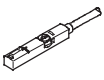


Dimensions and ordering data								
For $\varnothing$	B1	H1	L1	L2	L3	Weight [g]	Part No.	Type
50, 63	12	45.2	19	14	63	83	<b>549607</b>	<b>KTH-50/63/80</b>
80	12	45.2	19	14	68.5			


## Hinge cylinders DW

Accessories

Ordering data – Mounting kit						
	Scope of delivery	For Ø	Weight [g]	Part No.	Type	
	2 bolts, 4 retaining pins and 4 washers	50, 63	117	<b>573323</b>	<b>DAMD-F5-S-50</b>	
		80	362	<b>573172</b>	<b>DAMD-F5-S-80</b>	




Ordering data – Proximity sensor for T-slot, magneto-resistive						Technical data → Internet: <a href="#">smt</a>
	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part No.	Type
<b>N/O contact</b>						
	Insertable in slot from above, flush with cylinder profile	PNP	Cable, 3-wire	2.5	<b>543867</b>	<b>SMT-8M-PS-24V-K-2,5-OE</b>
			Plug M8x1, 3-pin	0.3	<b>543866</b>	<b>SMT-8M-PS-24V-K-0,3-M8D</b>
			Plug M12x1, 3-pin	0.3	<b>543869</b>	<b>SMT-8M-PS-24V-K-0,3-M12</b>
		NPN	Cable, 3-wire	2.5	<b>543870</b>	<b>SMT-8M-NS-24V-K-2,5-OE</b>
Plug M8x1, 3-pin	0.3		<b>543871</b>	<b>SMT-8M-NS-24V-K-0,3-M8D</b>		
	Insertable in slot lengthwise, flush with cylinder profile	PNP	Cable, 3-wire	2.5	<b>175436</b>	<b>SMT-8-PS-K-LED-24-B</b>
			Plug M8x1, 3-pin	0.3	<b>175484</b>	<b>SMT-8-PS-S-LED-24-B</b>
<b>N/C contact</b>						
	Insertable in slot from above, flush with cylinder profile	PNP	Cable, 3-wire	7.5	<b>543873</b>	<b>SMT-8M-PO-24V-K7,5-OE</b>

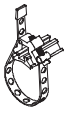
Ordering data – Proximity sensor for T-slot, magnetic reed						Technical data → Internet: <a href="#">sme</a>	
	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part No.	Type	
<b>N/O contact</b>							
	Insertable in slot from above, flush with cylinder profile	Contacting	Cable, 3-wire	2.5	<b>543862</b>	<b>SME-8M-DS-24V-K-2,5-OE</b>	
				5.0	<b>543863</b>	<b>SME-8M-DS-24V-K-5,0-OE</b>	
			Plug M8x1, 3-pin	Cable, 2-wire	2.5	<b>543872</b>	<b>SME-8M-ZS-24V-K-2,5-OE</b>
				0.3	<b>543861</b>	<b>SME-8M-DS-24V-K-0,3-M8D</b>	
	Insertable in slot lengthwise, flush with cylinder profile	Contacting	Cable, 3-wire	2.5	<b>150855</b>	<b>SME-8-K-LED-24</b>	
			Plug M8x1, 3-pin	0.3	<b>150857</b>	<b>SME-8-S-LED-24</b>	
<b>N/C contact</b>							
	Insertable in slot lengthwise, flush with cylinder profile	Contacting	Cable, 3-wire	7.5	<b>160251</b>	<b>SME-8-O-K-LED-24</b>	


Ordering data – Proximity sensor for T-slot, welding field immune					Technical data → Internet: <a href="#">smtso</a>
	Switching output	Electrical connection, right	Cable length [m]	Part No.	Type
	PNP	Plug M12x1, 3-pin	2.5	<b>191986</b>	<b>SMTSO-8E-PS-M12-LED-24</b>
	NPN	Plug M12x1, 3-pin	2.5	<b>175825</b>	<b>SMTSO-8E-NS-M12-LED-24</b>

## Hinge cylinders DW

Accessories

Ordering data – Connecting cables				Technical data → Internet: nebu	
	Electrical connection, left	Electrical connection, right	Cable length [m]	Part No.	Type
	Straight socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	<b>541333</b>	<b>NEBU-M8G3-K-2.5-LE3</b>
			5	<b>541334</b>	<b>NEBU-M8G3-K-5-LE3</b>
	Angled socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	<b>541338</b>	<b>NEBU-M8W3-K-2.5-LE3</b>
			5	<b>541341</b>	<b>NEBU-M8W3-K-5-LE3</b>
	Angled socket, M12x1, 5-pin	Cable, open end, 3-wire	2.5	<b>541363</b>	<b>NEBU-M12G5-K-2.5-LE3</b>
			5	<b>541364</b>	<b>NEBU-M12G5-K-5-LE3</b>

Ordering data – Mounting kit		Technical data → Internet: smbr	
		Part No.	Type
	For mounting the proximity sensor SME-/SMT-8M or SMTSO-8E on the cylinder	<b>538937</b>	<b>SMBR-8-8/100-S6</b>

Ordering data – Mounting kit		Technical data → Internet: smbz	
		Part No.	Type
	For mounting the proximity sensor SME-/SMT-8 or SMTSO-8E on the sensor strip	<b>537806</b>	<b>SMBZ-8-32/100</b>