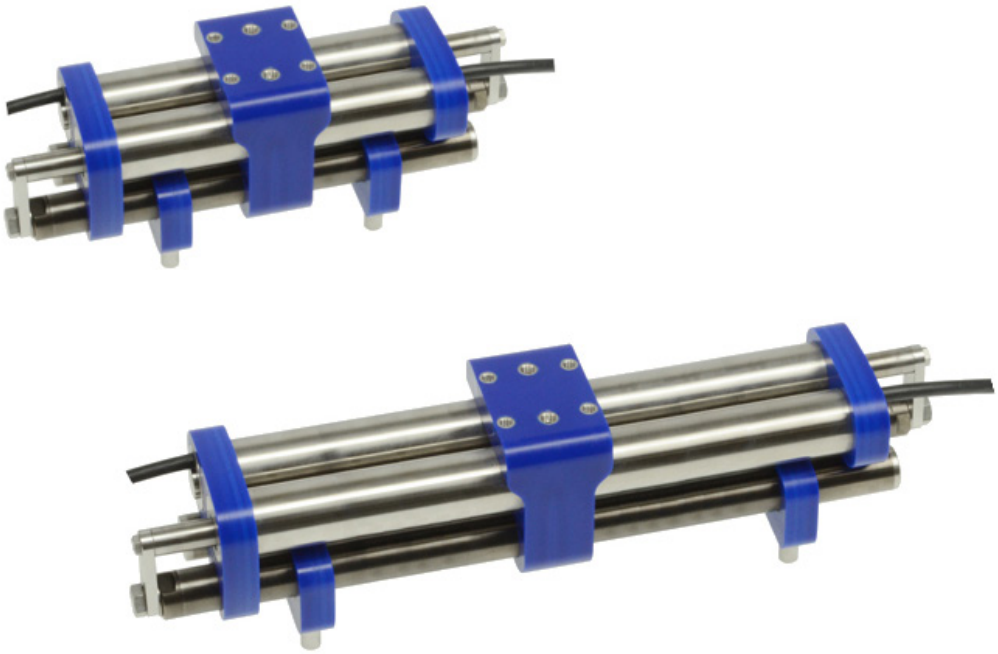
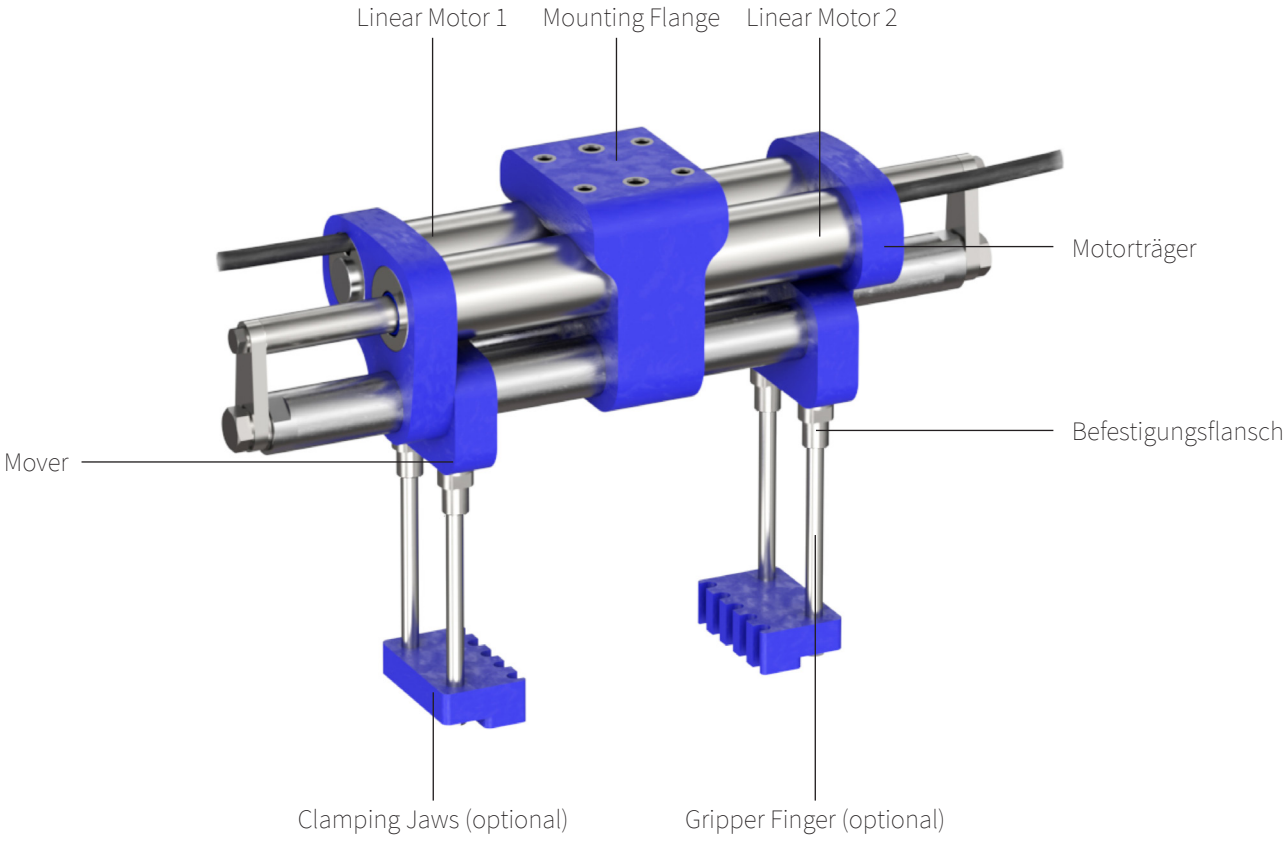
GRIPPER MODULES GM01



- Consistent opening and closing times with extremely high dynamics
- High reliability of clamping for uniform and non-uniform products
- Used in industries with high requirements, such as the pharmaceutical, food and automation industry
- High process reliability through monitoring data such as press force, distance, temperature and capacity utilisation
- „Washdown safe“
- Easy integration and adaptation to individual product and packaging formats
- Stainless steel EN 1.4404 and light materials (FDA)

GRIPPER MODULES GM01



Grippers GM01

The electric gripper is used for precise clamping and moving of products in demanding environments. Due to the high flexibility of the settings, dry, moist, solid or soft products can be gently clamped and transported without leaving noticeable marks. With its hygienic design and high IP69 protection rating, the gripper can be easily cleaned and is designed for use in the food industry. Thanks to the detection of the gripper position and the control of the clamping force, even uneven products can be gripped reliably. Due to the large number of monitoring options, faulty gripping or even defective parts can be detected "on the fly" and sorted out accordingly. The intelligent GM01 gripper includes a wide range of monitoring options, which are indispensable for applications with a high degree of automation.

Mode of use and coupling to the SM01 linear modules

Due to the easy coupling and the standardisation of the materials, the G01 parallel gripper complements another element of the stainless steel line from LinMot. In combination with the SM01 guide, a complete pick and place application can be realised in stainless steel EN 1.4404. A combination that is extremely resistant to chemicals and has an enormous service life even under difficult conditions. Further information on the SM01 modules can be found at https://linmot.com/products/linear-guides-linear-modules/linear-modules-stainless-steel-sm01/

Calculation of the necessary clamping force

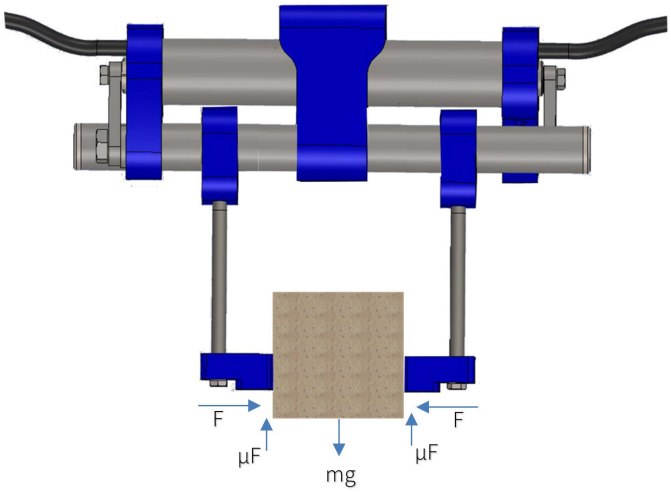
The principle for calculating the necessary clamping force depends on the coefficient of friction (μ) between the attachments (clamping jaws) and the workpiece. The different product shapes are another degree of freedom for the design of the clamping force used. In principle, the force can be set to any value between 10N and 130N in order to achieve an optimum clamping process. For a normal transport of a product (shocks and vibrations taken into account*), a clamping force of at least 10 to 20 times the weight of the workpiece should be used.

* If large accelerations or impact forces occur while driving, appropriate measures must be taken.

Calculation

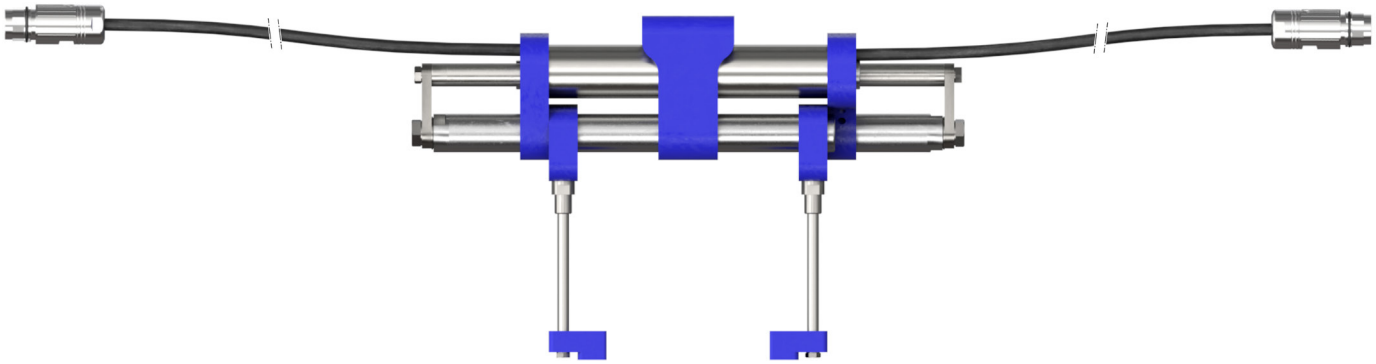
$$X_{arm} \cdot \mu F > mg \Rightarrow 2 \cdot \mu F > mg$$

$$F = \frac{mg}{2 \cdot \mu} \cdot X_{res} \Rightarrow F = \frac{mg}{2 \cdot \mu} \cdot X_{res}$$



X_{arm} = Number of gripper fingers (default 2)
X_{res} = Safety factor (default 4)
F = Clamping force
μ = Coefficient of friction (z.B. 0.1 / 0.2)
m = Workpiece weight (kg)
g = Gravitational constant (= 9.8 m/s²)
mg = Workpiece weight (N)

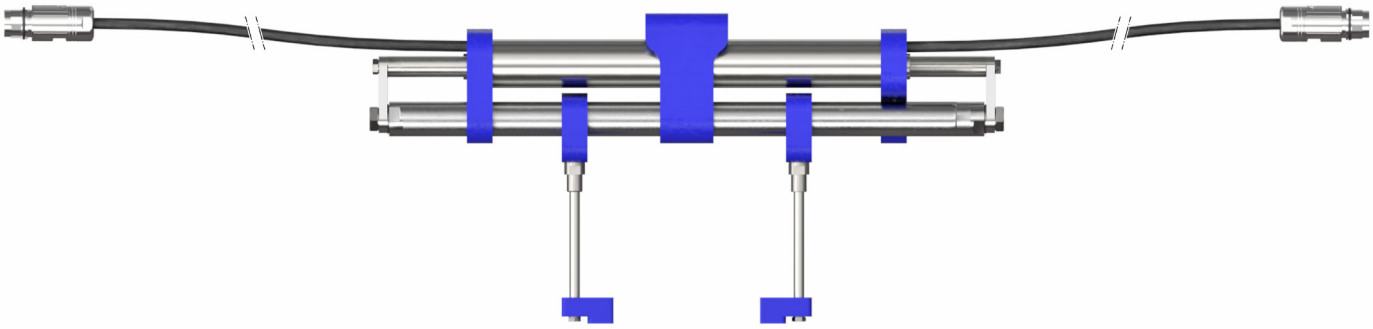
PERFORMANCE DATA GM01-23X80F-HP-82-SSCP



Performance Data Gripper Module GM01-23x80F-HP-82-SSCP				
Stroke				
Max. Opening/Closing Stroke Range	mm	(in)	≤ 82	(≤ 3.23)
Force				
Max. Clamping Force @ 48VDC	N	(lbf)	67.1	(15.08)
Max. Clamping Force @ 72VDC	N	(lbf)	67.1	(15.08)
Max. Continuous Clamping Force	N	(lbf)	24	(5.39)
Velocity				
Max. Gripper Speed (Close/Open)	m/s	(in/s)	> 60	(> 2307)
Position Detection				
Position Resolution	mm	(in)	0.005	(0.0002)
Repeatability	mm	(in)	±0.05	(±0.002)
Electrical Data				
Max. Current per Gripper Arm @ 48VDC	A_{pk}		7.4	
Max. Current per Gripper Arm @ 72VDC	A_{pk}		7.4	
Mechanical Data				
Gripper Width	mm	(in)	70	(2.76)
Gripper Length	mm	(in)	434	(17.09)
Gripper Height (without / with Gripper Finger)	mm	(in)	85 / 165	(3.35 / 6.50)
Gripper Mass	g	(lb)	2000	(4.41)
Cable Length	mm	(in)	1500	(59.06)
Coupling of Clamping Jaws			M5	
Material (Motor Support / Clamping jaws / mounting flange)			POM	
Material (Stator / Slider / Guide)			1.4404	316L
Material (Cable Sheath)			PUR	
IP Protection Class			IP 69*	

* Protection Class Motor Connection IP67r

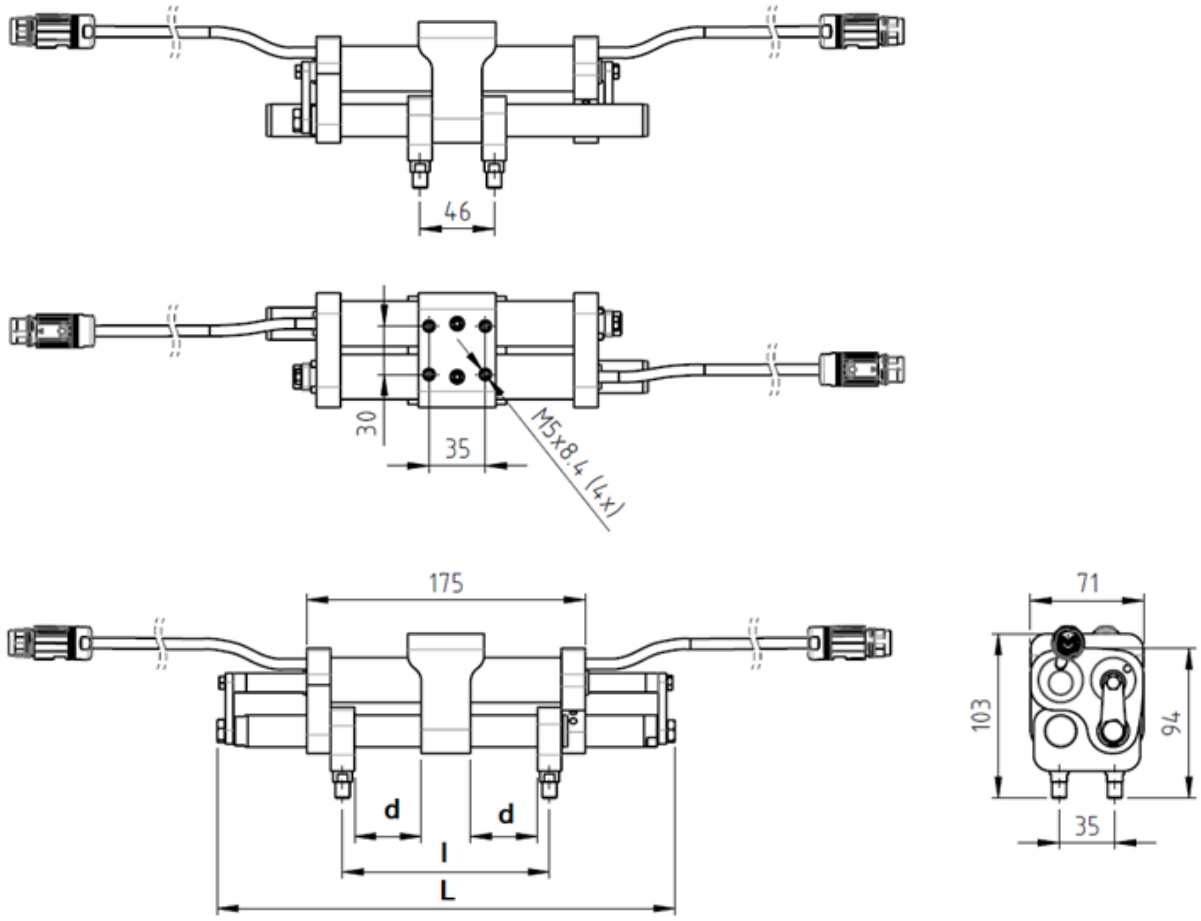
PERFORMANCE DATA GM01-23X160H-HP-162-SSCP



Performance Data Gripper Module GM01-23x160H-HP-162-SSCP				
Stroke				
Max. Opening/Closing Stroke Range	mm	(in)	≤ 162	(≤ 6.38)
Force				
Max. Clamping Force @ 48VDC	N	(lbf)	126	(28.31)
Max. Clamping Force @ 72VDC	N	(lbf)	138	(31.01)
Max. Continuous Clamping Force	N	(lbf)	47	(10.56)
Velocity				
Max. Gripper Speed (Close/Open)	m/s	(in/s)	> 80	(> 3077)
Position Detection				
Position Resolution	mm	(in)	0.005	(0.0002)
Repeatability	mm	(in)	±0.05	(±0.002)
Electrical Data				
Max. Current per Gripper Arm @ 48VDC	A_{pk}		10	
Max. Current per Gripper Arm @ 72VDC	A_{pk}		10	
Mechanical Data				
Gripper Width	mm	(in)	70	(2.76)
Gripper Length	mm	(in)	288	(11.34)
Gripper Height (without / with Gripper Finger)	mm	(in)	85 / 165	(3.35 / 6.50)
Gripper Mass	g	(lb)	2500	(5.51)
Cable Length	mm	(in)	1500	(59.06)
Coupling of Clamping Jaws			M5	
Material (Motor Support / Clamping jaws / mounting flange)			POM	
Material (Stator / Slider / Guide)			1.4404	316L
Material (Cable Sheath)			PUR	
IP Protection Class			IP 69*	

* Protection Class Motor Connection IP67r

GREIFER



Dimensions mm

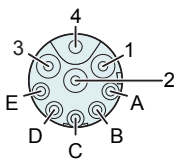
Gripper	d [mm (inch)]		l [mm (inch)]		L [mm (inch)]	
GM01-23x80F-HP-82-SSCP	42	(1.65)	130	(5.12)	288	(11.34)
GM01-23x160H-HP-162-SSCP	81	(3.19)	210	(8.27)	448	(17.64)

Item	Description	Item-No.
GM01-23x80F-HP-R150-82-SSCP	Gripper Module SSCP, max. stroke 82mm, max. Force 67N	0150-5308
GM01-23x160H-HP-R150-162-SSCP	Gripper Module SSCP, max. stroke 162mm, max. force 138N	0150-5595

CONNECTOR

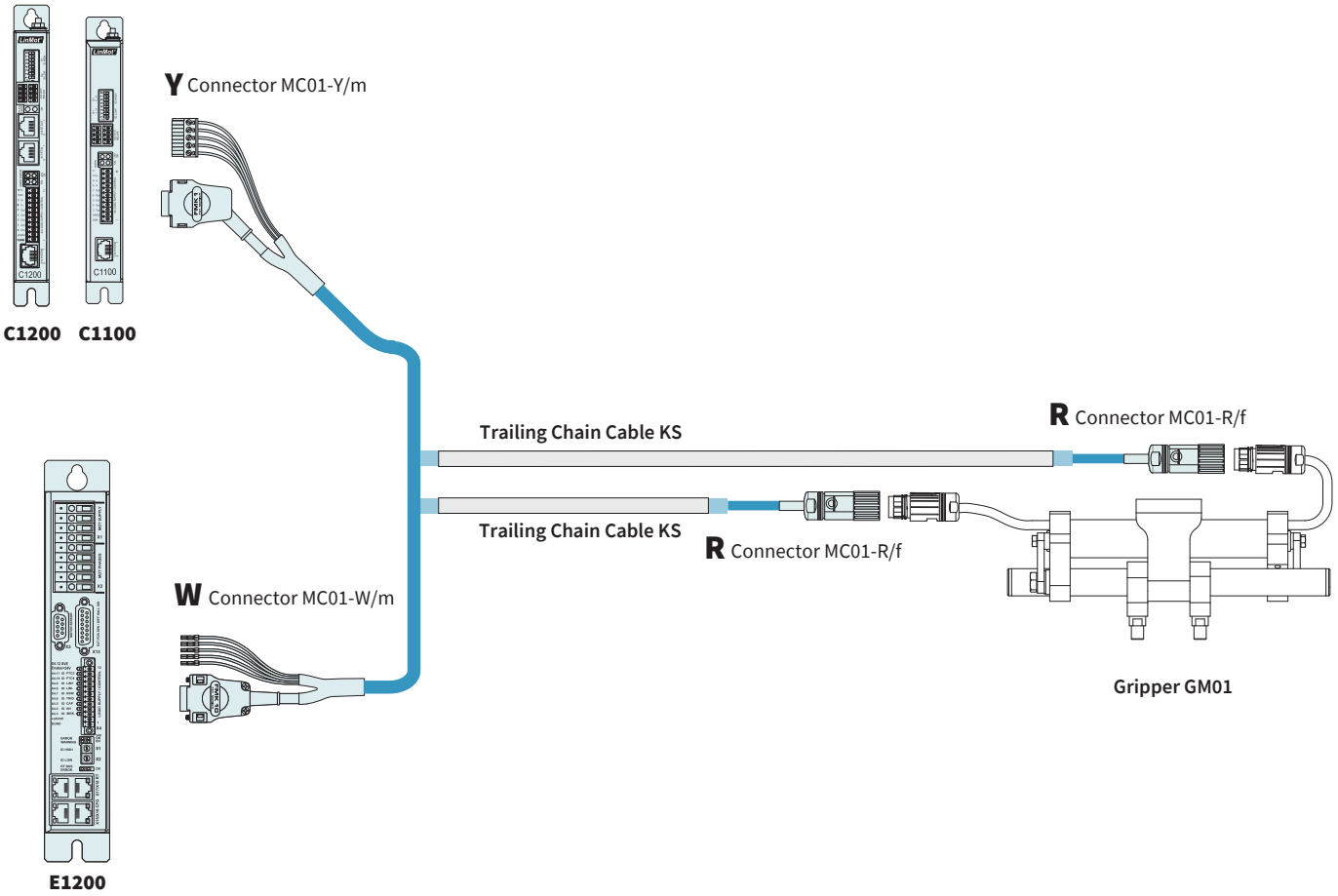
Motor Connector Wiring	R-Connector	Wire Color Motor Cable
Ph 1+	1	red
Ph 1-	2	pink
Ph 2+	3	blue
Ph 2-	4	grey
+5VDC	A	white
GND	B	inner Shield
Sinus	C	yellow
Cosinus	D	green
Temp.	E	black
Shield	Case	outer Shield

R-Connector



View: Motor connector, plug side
Mat. Motor Connector: Nickel-plated
Max. Torque: 0.6 Nm

MOTOR CABLES



TRAILING CHAIN CABLES		
Item	**Description**	**Item-No.**
KS05-W/R-4	Trailing Chain Cable W/R, 4 m	0150-2106
KS05-W/R-6	Trailing Chain Cable W/R, 6 m	0150-2131
KS05-W/R-8	Trailing Chain Cable W/R, 8 m	0150-2107
KS05-W/R-	Trailing Chain Cable W/R, Custom length	0150-3256
KS05-Y/R-4	Trailing Chain Cable Y/R, 4 m	0150-2433
KS05-Y/R-6	Trailing Chain Cable Y/R, 6 m	0150-2434
KS05-Y/R-8	Trailing Chain Cable Y/R, 8 m	0150-2435
KS05-Y/R-	Trailing Chain Cable Y/R, Custom length	0150-3507

FURTHER ACCESSORIES

Further accessories are available on request.

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