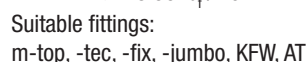
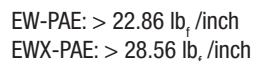
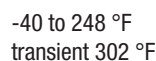


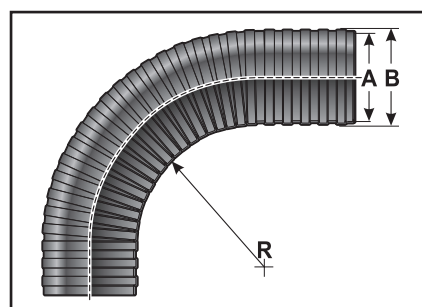
RoHS
compliance



This cable protection conduit was developed specially for robot applications subject to extreme movements. Extremely small bending radii with extremely high flexibility and extreme flexural fatigue strength. It is also highly resistant to abrasion with low weight.

Applications:

- Robots
- Handling systems
- In cable drag chains







Recommendations for use

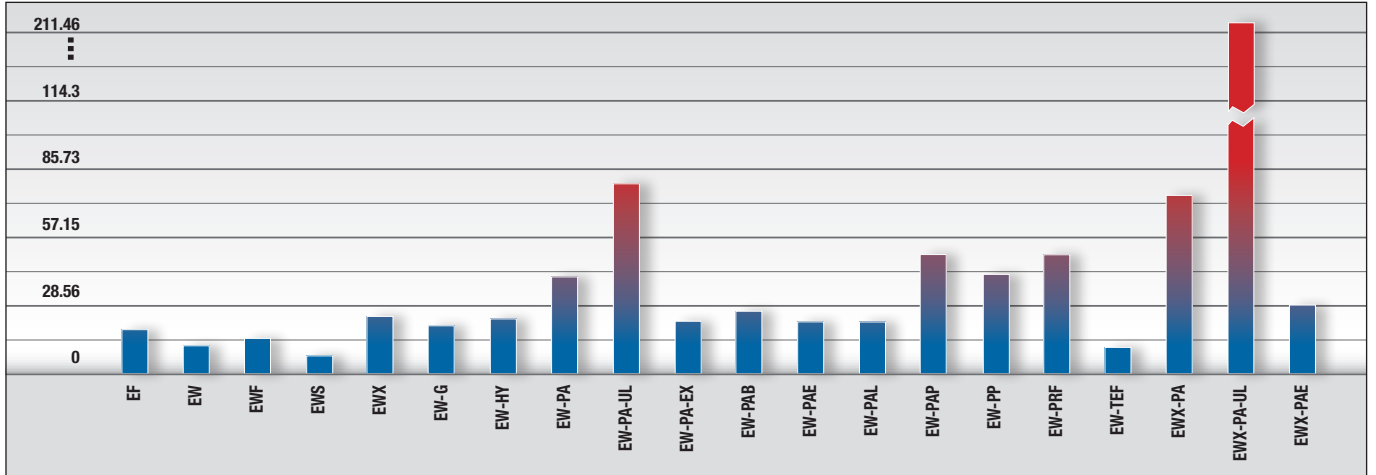
	EF	EW	EW-F	EWS	EWX	EW-G	EW-HY	EW-PA	EW-PA-UL	EW-PA-EX	EW-PAB	EW-PAE	EW-PAL	EW-PAP	EW-PP	EW-PRF	EW-TEF	EWX-PA	EWX-PA-UL	EWX-PAE	GF
Bundling cables		✓	✓	✓	✓																✓
Light mechanical protection	✓	✓	✓	✓		✓											✓				
Medium mechanical protection					✓		✓			✓	✓	✓	✓							✓	
High mechanical protection								✓						✓	✓	✓					
Very high mechanical protection									✓									✓			
Extremely high mechanical protection																			✓		
Persistent movements / dynamic applications (robotically controlled axes)	✓						✓					✓			✓	✓				✓	
Protection against hot solids (e.g. chippings)														✓							
ATEX Guideline 94/9/EG										✓											
UL-listed conduits File No.: E148958								✓	✓		✓					✓			✓		
CSA-listed conduits File No.: 217843								✓	✓		✓										
German railways approval DIN 5510-2									✓		✓					✓					
Approved by French railways NF F 16-101									✓		✓					✓					
Airways approval ABD 0031																✓					
Airways approval FAR 25853																✓					
Very good chemical resistance	✓					✓	✓								✓		✓				
Hygiene applications						✓															
For pre-assembled cables and retrofitting of cables																					
Extreme temperature range																	✓				

Material data

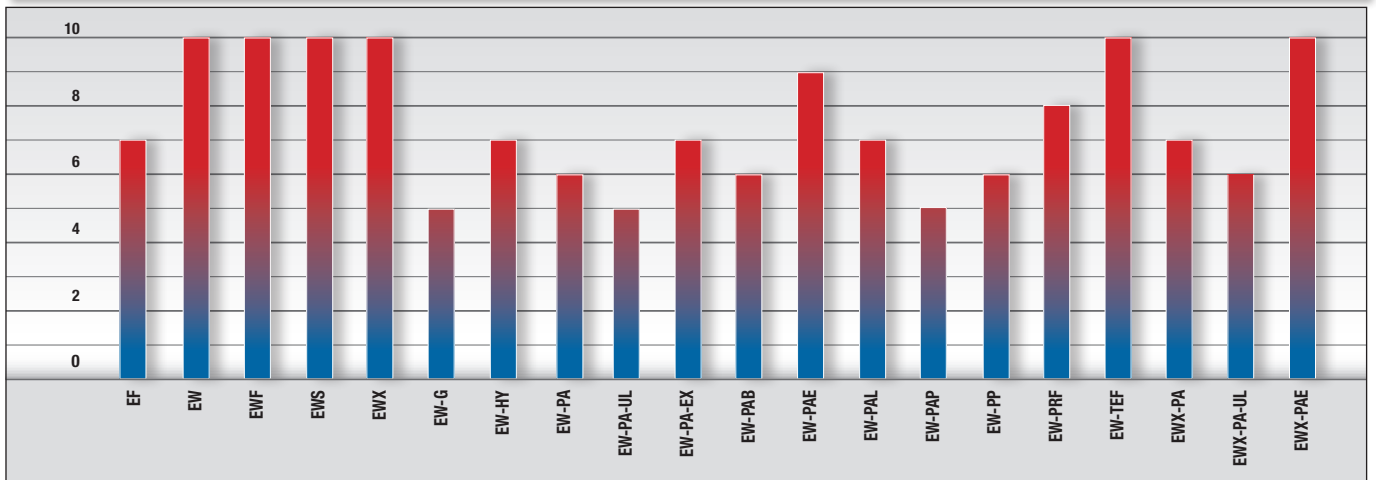
	Material	Temperature area [°F]			Fire specifications UL94	UL 224, type B	Self-extinguishing	UL File number E148958	S4 Fire classification DIN 5510	FMVSS Type A [<2.95 in./min] type B [<3.94 in./min]	CSA 217843	Crush resistance / inch EW-M25/P21 / EWX-M25/P21	Halogen-free	Phosphorous-free	Cadmium-free	Asbestos-free	Lead-free	Silicone-free	PWIS-free	RoHS Compliant
		Min.	Max.	Short periods																
EF	Thermoplastic elastomer	-58	320	356	HB							>17.15	✓	✓	✓	✓	✓	✓	✓	✓
EW	Polyethylene	-40	194	248	HB					B		>11.43	✓	✓	✓	✓	✓	✓	✓	✓
EWf	Polyethylene	-40	194	248	V2		✓					>14.29	✓	✓	✓	✓	✓	✓	✓	✓
EWS	Polyethylene	-40	194	248	HB							>5.72	✓	✓	✓	✓	✓	✓	✓	✓
EWX	Polyethylene	-40	194	248	HB					B		>22.86	✓	✓	✓	✓	✓	✓	✓	✓
EW-G	Polypropylene, EPDM	-40	248	302	HB					A		>20.00		✓	✓	✓	✓	✓	✓	✓
EW-HY	Thermoplastic elastomer	-58	320	356	HB					B		>22.86	✓	✓	✓	✓	✓	✓	✓	✓
EW-PA	Polyamide PA6	-40	284	320	HB			✓		B	✓	>40.00	✓	✓	✓	✓	✓	✓	✓	✓
EW-PA-UL	Polyamide PA6	-40	284	320	V0		✓	✓	✓	A	✓	>74.30	✓	✓	✓	✓	✓	✓	✓	✓
EW-PA-EX	Polyamide PA12	-40	230	302	HB					B		>20.00	✓	✓	✓	✓	✓	✓	✓	✓
EW-PAB	Polyamide PA6	-40	284	320	V0		✓	✓	✓	B	✓	>25.72	✓	✓	✓	✓	✓	✓	✓	✓
EW-PAE	Polyamide PA12	-40	248	302	HB					B		>22.86	✓	✓	✓	✓	✓	✓	✓	✓
EW-PAL	Polyamide PA6	-40	284	320	HB					B		>22.86	✓	✓	✓	✓	✓	✓	✓	✓
EW-PAP	Polyamide PA6	-40	284	320	HB					B		>45.72	✓	✓	✓	✓	✓	✓	✓	
EW-PP	Polypropylene	-40	266	302	V2		✓			A		>40.00		✓	✓	✓	✓	✓	✓	✓
EW-PRF	Polyamide PA12	-58	221	302	V0		✓	✓	✓	B		>45.72	✓	✓	✓	✓	✓	✓	✓	✓
EW-TEF	Fluoroplastic	-328	500		V0		✓			A		>11.43	✓	✓	✓	✓	✓	✓	✓	✓
EWX-PA	Polyamide PA6	-40	284	320	HB					B		>74.30	✓	✓	✓	✓	✓	✓	✓	✓
EWX-PA-UL	Polyamide PA6	-40	284	320	V0		✓	✓				>217.17	✓	✓	✓	✓	✓	✓	✓	✓
EWX-PAE	Polyamide PA12	-40	248	302	HB					B		>28.56	✓	✓	✓	✓	✓	✓	✓	✓
GF	Polyamide PA6	-40	302	347		✓	✓			B			✓	✓	✓	✓	✓	✓	✓	



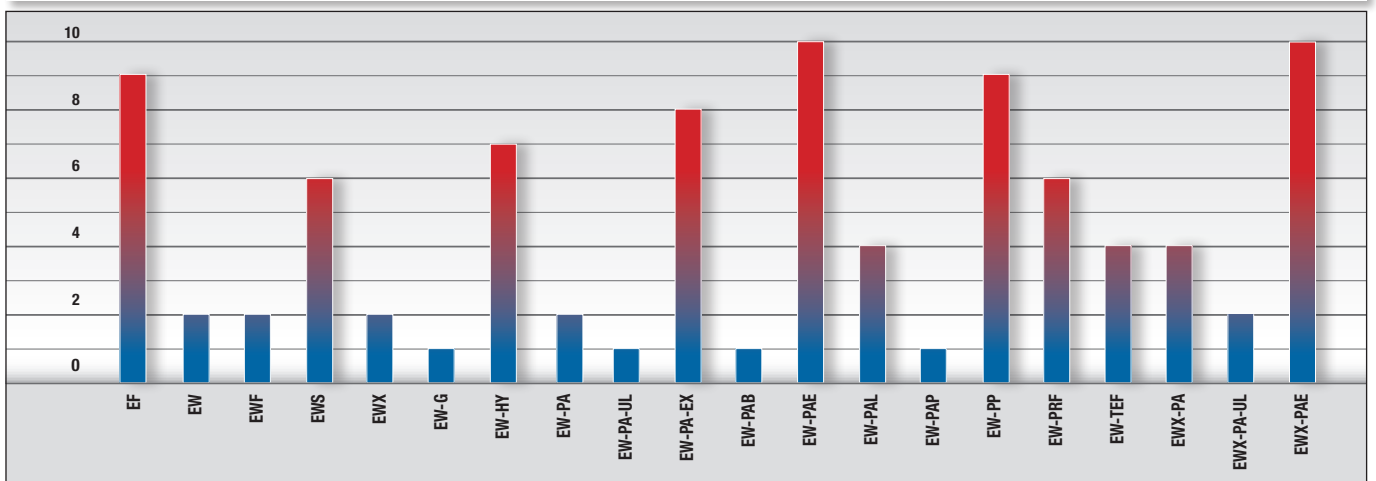
Selection diagrams



Crush resistance [lb_f / inch]

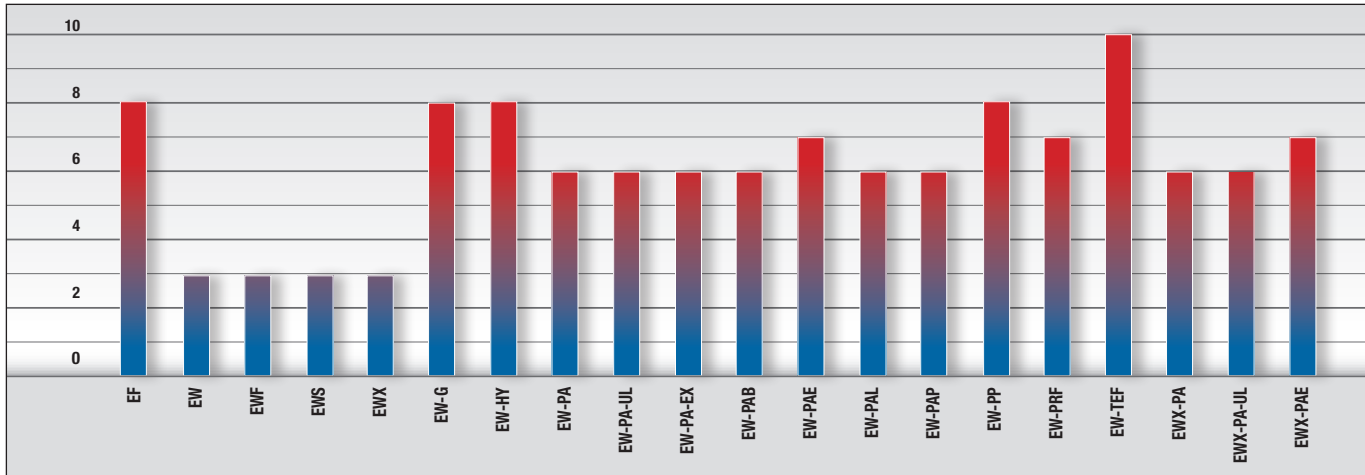


Flexibility

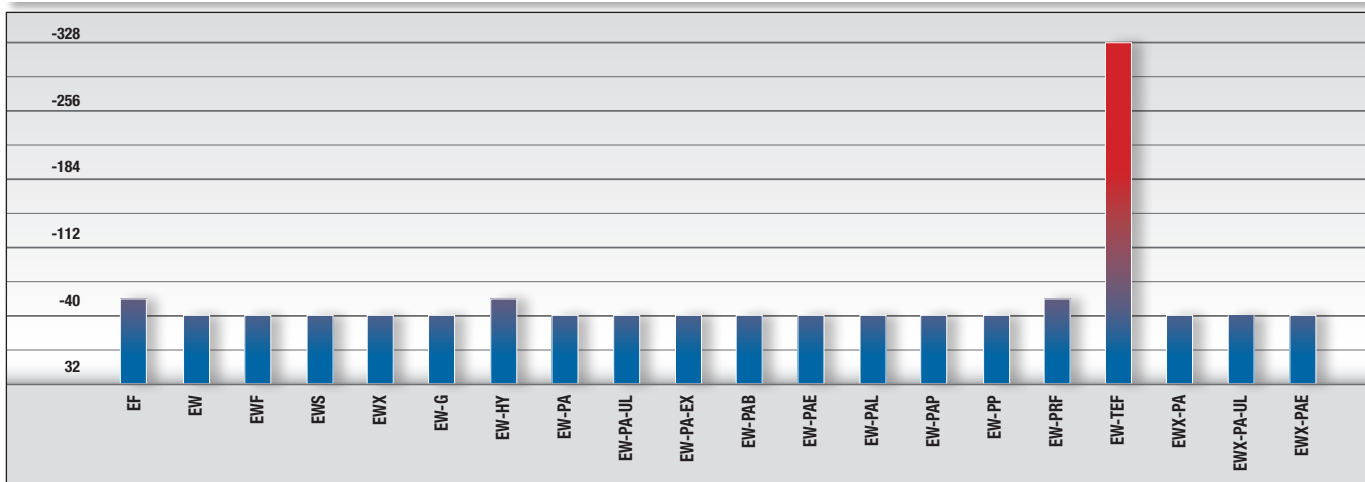


Flexural fatigue strength

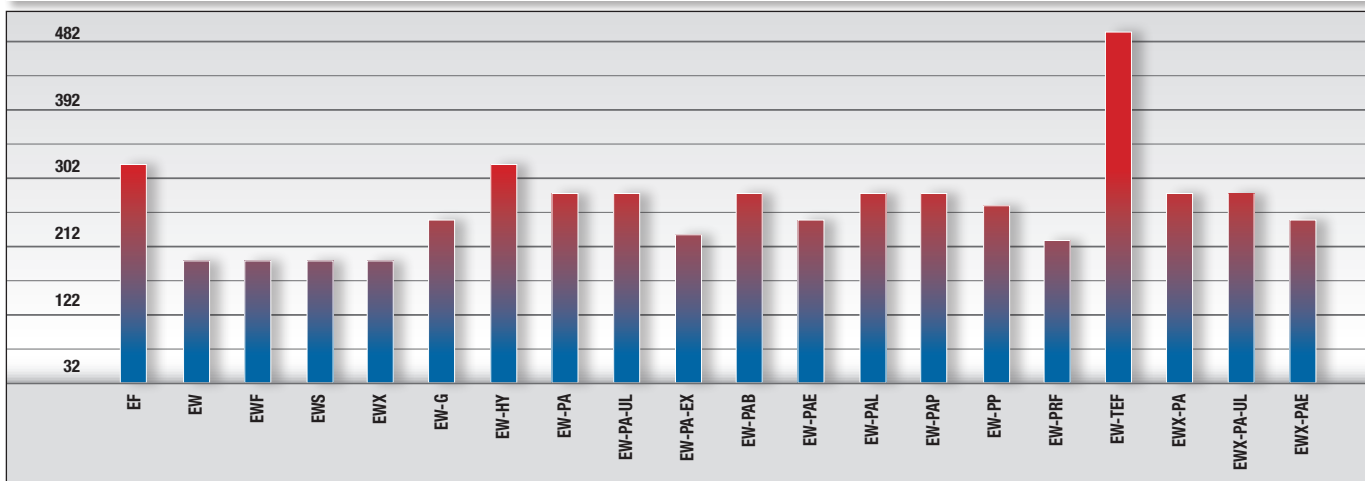
Selection diagrams



Chemical resistance



Lower temperature range [°F]



Higher temperature range [°F]



Combination options

	Conduit fittings up to conduit size M50 / Pg48													
	m-top									m-tec				
	CVG	CWV 45°	CWV 90°	DWV 45°	DWV 90°	IVG	VG	VW 45°	VW 90°	EH	KW	CSKV	ECSKV	MECSKV
EF	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
EW	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWf	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWX	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EW-G	⦿	⦿	⦿	⦿	⦿	⦿	⦿	⦿	⦿	⦿	⦿	⦿	⦿	⦿
EW-HY	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EW-PA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EW-PA-UL	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EW-PA-EX	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EW-PAB	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EW-PAE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EW-PAL	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EW-PAP	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
EW-PP	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EW-PRF	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EW-TEF	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWX-PA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWX-PA-UL	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EWX-PAE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
GF	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗

✓ combinable

✗ not combinable

⦿ combinable to an extent (remove sheathing)

Combination options

Conduit fittings up to conduit size M50 / Pg48									From NW56		Special		
m-tec			m-fix			Bulkhead fitting			m-Jumbo				
CKW	MCSKV	MCKW	MSV	WSV	KSV	KFW *	KFW/D	KFW/X	SA-Jumbo	KFW-Jumbo	EH-EMV	AT	
✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	EF
✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✗	✓	EW
✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✗	✓	EWf
✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✗	✓	EWS
✓	✓	✓	*	*	*	✓	✗	✓	✓	✓	✗	✓	EWX
⋮	⋮	⋮	⋮	⋮	⋮	✓	⋮	✗	⋮	⋮	✗	⋮	EW-G
✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✗	✓	EW-HY
✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✗	✓	EW-PA
✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✗	✓	EW-PA-UL
✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✗	✓	EW-PA-EX
✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✗	✓	EW-PAB
✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✗	✓	EW-PAE
✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✗	✓	EW-PAL
✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✓	✗	EW-PAP
✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✗	✓	EW-PP
✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✗	✓	EW-PRF
✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✗	✓	EW-TEF
✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✗	✓	EWX-PA
✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✗	✓	EWX-PA-UL
✓	✓	✓	*	*	*	✓	✗	✓	✓	✓	✗	✓	EWX-PAE
✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	GF

✓ combinable

×

* combinable where extraction forces are low

⋮ combinable to an extent (remove sheathing)

* in connection with an additional conduit or cable fitting