



## B15.en Reactive coating systems for fire protection

Knauf Firepaint Steel

## B15.en

### Reactive coating systems for fire protection

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### Product description

#### Knauf Firepaint Steel

Knauf Firepaint Steel is a one component, solvent-borne, physically drying intumescent coating for passive fire protection of structural steel against cellulosic fires. It is suitable for in-shop and on-site applications. Knauf Firepaint Steel received European Technical Approval.

#### Primers:

##### For carbon steel surfaces:

#### Knauf Firepaint Primer K1

Knauf Firepaint Primer K1 is a very quick-drying anticorrosive primer/finish pigmented with zinc phosphate as anticorrosive inhibiting pigment.

Knauf Firepaint Primer is used as a single/double coat anticorrosive primer (or finish - to put directly) for steel structures, general steel work and a multitude of applications for heavy and light steel industry, where quick drying properties are required. It is for general use, in exterior and interior steel surfaces. Suitable for protection of steel in mild to medium atmospheric corrosive environments.

#### For galvanized surfaces:

#### Knauf Firepaint Primer K2

Knauf Firepaint Primer K2 is a two-component epoxy paint. It cures to a flexible, well adhering coating with good abrasion and impact resistance. Contains zinc phosphate.

As a primer for on hot dipped galvanized surfaces, aluminium and stainless steel in moderately corrosive environments. Knauf Firepaint Primer K2 is also suited when roughening of the surface is not possible.

#### Top coat:

#### Knauf Firepaint Finish

Knauf Firepaint Finish is a finishing coat based on acrylic resin and nonchlorinated plasticizer for optimum gloss and colour retention. Physically drying. Resistant to salt water, splashes of aliphatic hydrocarbons and animal and vegetable oils.

Knauf Firepaint Finish is used as an interior and exterior finishing coat in Knauf Firepaint systems in moderately to severely corrosive environment.

#### Thinners:

#### Knauf Firepaint Finish Thinner AL

#### Knauf Firepaint Finish Thinner EP

Knauf Paint is produced and supplied in such a way that thinning is normally not necessary provided the paint is properly mixed/stirred.

However, if the paint is to be applied in a low film thickness (for instance as a „sealer coat“) or if the paint has become too thick, e.g. in cold weather, the Knauf Thinners indicated on the product data sheet may be added to obtain a consistency most suitable for application. As a general rule, thinning should be kept at a minimum as the quality of the paint work will suffer from too liberal thinning.

### Scope of application, properties, storage, method of delivery

#### Scope of application

Knauf Firepaint Steel is used as reactive coating system to fire protect beams and columns made of structural steel to achieve a fire resistance duration in accordance with EN 13501-2.

The product is approved on the basis of Approval testing in accordance with EN 13381-8:2010 and ETAG 018.

Knauf Firepaint Steel is intended to fire protect various sizes of open sections (H and I) and square and circular hollow columns for up to a fire resistance classification, in the design temperatures range of 350°C to 750°C.

#### Knauf Firepaint Steel is intended for the following applications:

- As intumescent fire protection for internal and external structural steel. Suitable for open beams and columns and hollow sections
- As a repair and touch-up coating for damaged areas of freshly applied Knauf Firepaint Steel.
- Applied in up to 1500 micron dry film thickness per coat (equivalent to 2000 micron wet film thickness).
- Knauf Firepaint Steel in accordance with ETA for the protection of steel beams and columns:
  - open H- or I-sections - up to R 240
  - circular hollow sections - up to R240
  - rectangular hollow sections - up to R300

#### Properties:

- Easy application
- Easy to work with
- Cost effective - high volume solids and quick drying
- Off-site and on-site application by airless spray
- Suitable for indoor and outdoor use
- Matt white finish
- Wide range of primers and topcoats

#### Storage

Knauf Firepaint Steel shall be stored in dry, shaded areas. The recommended storage conditions are between 5°C and 40°C. The shelf life of Knauf Firepaint Steel may vary depending on the storage conditions. At 25°C the shelf life is 12 months from date of manufacture. The shelf life may be reduced if the products are stored outside Knauf's recommended storage conditions. The products must be re-inspected before use in case the shelf life is exceeded.

#### Method of delivery

Knauf Firepaint Steel	
bucket 20 l	article no. 528431
Knauf Firepaint Primer K1	
bucket 20 l	article no. 528433
Knauf Firepaint Primer K2	
bucket 5 l	article no. 528434
Knauf Firepaint Finish white	
bucket 20 l	article no. 528435
Knauf Firepaint Finish colour	
bucket 20 l	article no. 528436
Knauf Firepaint Thinner AL	
bucket 5 l	article no. 528824
Knauf Firepaint Thinner EP	
bucket 5 l	article no. 528825

# B15.en Knauf Firepaint Steel

## Technical details



Knauf Firepaint Steel	
Reaction to fire	D-s2,d0
Shade nos/Colours	10000 / White
Finish	flat
Volume solids, %	75 ± 3
Theoretical spreading rate	1 m <sup>2</sup> /l to 750 micron
Flash point	23 °C
Specific gravity	1.3 kg/litre
Surface dry	30 minutes, 20°C and 750 micron
Dry to touch	35 minutes, 20°C and 750 micron
Dry to handle	1 day 20°C and 750 micron
VOC content	320 g/l
Shelf life	12 months

Knauf Firepaint primer K1	
Shade nos/Colours	11150*/ Grey
Finish	flat
Volume solids, %	49 ± 1
Theoretical spreading rate	7 m <sup>2</sup> /l - 70 micron
Flash point	25 °C
Specific gravity	1.4 kg/litre
Dry to touch	15 minutes (proper ventilation is required)
Dry to handle	1 hour (proper ventilation is required)
VOC content	442 g/l

Knauf Firepaint primer K2	
Shade nos/Colours	11630 / Off-white
Finish	flat
Volume solids, %	55 ± 1
Theoretical spreading rate	11 m <sup>2</sup> /l - 50 micron
Flash point	30 °C
Specific gravity	1.5 kg/litre
Dry to touch	3 approx. hours 20°C
Dry to handle	7 days 20°C
VOC content	389 g/l

# B15.en Knauf Firepaint Steel

## Technical details



Knauf Firepaint Finish	
Shade nos/Colours	10000*/ White
Finish	glossy
Volume solids, %	32 ± 1
Theoretical spreading rate	9.1 m <sup>2</sup> /l - 50 micron
Flash point	25 °C
Specific gravity	1.1 kg/litre
Dry to touch	1 approx. hour 20°C
Dry to handle	3-4 hours 20°C
VOC content	597 g/l

Knauf Firepaint Finish Thinner AL	
Shade nos/Colours	00000/ Colourless
Flash point	23 °C
Specific gravity	0.9 kg/litre
VOC content	870 g/l

Knauf Firepaint Finish Thinner EP	
Shade nos/Colours	00000/ Colourless
Flash point	23 °C
Specific gravity	0.9 kg/litre
VOC content	857 g/l

# B15.en Knauf Firepaint Steel

Protection of steel beams and columns



Primer (irrespective of the use environmental category)	Reactive coating	Topcoat (depending on the environmental use category)
Primer for carbon steel surfaces: Knauf Firepaint Primer K1	Knauf Firepaint Steel	<b>Category Type X</b> (including Types Y, Z <sub>1</sub> and Z <sub>2</sub> )
		Knauf Firepaint Finish
<b>Category Type Y</b> (including Types Z <sub>1</sub> and Z <sub>2</sub> )		
Without topcoat or with the topcoats Type X approved		
Primer for galvanized surfaces: Knauf Firepaint Primer K2		

The environmental use categories are specified in ETAG 018 Part 2, section 2.2.2:

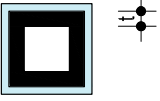
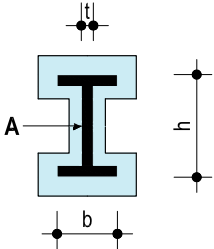
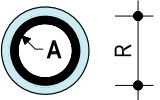
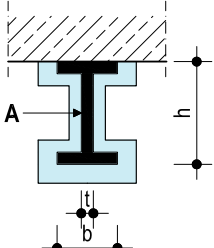
- Type X: external use
- Type Y: internal use and semi-exposed conditions
- Type Z<sub>1</sub>: internal use with high humidity conditions
- Type Z<sub>2</sub>: internal use

# B15.en Knauf Firepaint Steel

Protection of steel beams and columns



## Determination of the U/A section factor for steel beams and columns

Type of section	Exposure to fire	U/A	Type of section	Exposure to fire	U/A
values of: b, h, t - in cm, area A - in cm <sup>2</sup>		m <sup>-1</sup>	values of: b, h, t - in cm, area A - in cm <sup>2</sup>		m <sup>-1</sup>
	4 sides	$\frac{100}{t}$		4 sides	$\frac{4b - 2t + 2h}{A} \cdot 100$
	4 sides	$\frac{2\pi R}{A} \cdot 100$		3 sides	$\frac{3b - 2t + 2h}{A} \cdot 100$

all dimensions in mm

### Minimum thickness of Knauf Firepaint Steel

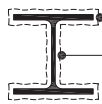
The thickness of the plaster Knauf Firepaint Steel depends on the U/A section factor of steel beams and columns, critical temperature of steel and the fire resistance class required.

# B15.en Knauf Firepaint Steel

Section factor U/A for steel beams and columns









## Steel beams and columns



U = heated surface  
A = cross sectional area (m<sup>2</sup>)

The spray thickness required is calculated based on the U/A section factor and the section shape. The values given are approximations. They may be slightly different depending on the rolled beam manufacturer.

### Section factor U/A for steel beams and columns(m<sup>-1</sup>)

IPN profile		IPE profile		HEA profile				
								
	3-sided	4-sided		3-sided	4-sided		3-sided	4-sided
80	346	401	80	370	431	100	218	265
100	302	349	100	336	389	120	220	268
120	268	309	120	311	360	140	208	253
140	238	274	140	291	336	160	190	234
160	220	252	160	269	310	180	185	225
180	200	229	180	254	292	200	175	212
200	185	212	200	234	270	220	162	196
220	171	196	220	221	254	240	147	178
240	160	183	240	205	236	260	141	171
260	149	170	270	197	227	280	136	164
280	139	158	300	188	216	300	126	153
300	131	149	330	175	200	320	117	142
320	123	140	360	162	186	340	112	134
340	117	133	400	153	174	360	107	128
360	110	125	450	144	163	400	101	120
380	105	119	500	133	150	450	96	113
400	100	113	550	125	141	500	92	107
425	95	107	600	115	130	550	90	104
450	89	101				600	89	102
475	84	95				650	87	100
500	80	91				700	84	96
550	75	85				800	84	94
600	67	76				900	81	90
						1000	81	89









# B15.en Knauf Firepaint Steel

Section factor U/A for steel beams and columns



Section factor U/A for steel beams and columns(m<sup>-1</sup>)

HEB profile		HEM profile		Hollow sections			
							
3-sided	4-sided	3-sided	4-sided	4-sided	4-sided		
100	180	96	116	40 x 40 x 4	268	51 x 4	270
120	167	92	111	50 x 50 x 4	264	70 x 5	216
140	155	86	104	60 x 60 x 3	344	101,6 x 4	260
160	140	83	100	70 x 70 x 3	343	101,6 x 8	136
180	130	80	96	80 x 80 x 3	341	139,7 x 4	257
200	122	76	91	90 x 90 x 4	257	139,7 x 8	133
220	115	73	88	100 x 100 x 4	257	168,3 x 5	206
240	108	61	73	120 x 120 x 5	206	168,3 x 10	106
260	105	59	71	140 x 140 x 5	205	193,7 x 5	206
280	102	58	70	150 x 150 x 5	205	193,7 x 10	106
300	96	50	60	160 x 160 x 5	204	244,5 x 6	171
320	91	50	60	180 x 180 x 5	204	244,5 x 12	88
340	88	50	60	200 x 200 x 5	203	273 x 6	171
360	86	51	61	220 x 200 x 6	170	273 x 12	87
400	82	52	61	250 x 250 x 6	169	323,9 x 6	170
450	78	53	63	260 x 260 x 6	168	323,9 x 12	86
500	76	54	63	300 x 300 x 6	168	355,6 x 8	128
550	76	56	64	350 x 350 x 8	127	355,6 x 20	53
600	75	57	65	400 x 400 x 10	101	406,4 x 8	128
650	74	58	66			406,4 x 20	53
700	72	59	67			457 x 10	103
800	72	61	68			508 x 10	103
900	70	62	69			508 x 20	52
1000	70	64	70			610 x 10	102
						610 x 20	52



# B15.en Knauf Firepaint Steel

Steel beams, 3-sided open H- or I-sections - protection thickness required



Thickness (mm) required for the RF period - only intumescent coating

T U/A	R 90				R 120				R 180				R 240			
	500°C	550°C	600°C	650°C	500°C	550°C	600°C	650°C	500°C	550°C	600°C	650°C	500°C	550°C	600°C	650°C
58	0,946	0,592	0,444	0,343	1,467	1,222	1,057	0,804	-	-	-	1,779	-	-	-	-
60	0,966	0,619	0,462	0,356	1,500	1,249	1,082	0,842	-	-	-	1,823	-	-	-	-
65	1,018	0,686	0,509	0,390	1,584	1,318	1,144	0,936	-	-	-	2,142	-	-	-	-
70	1,069	0,753	0,555	0,423	1,667	1,386	1,206	0,998	-	-	-	2,530	-	-	-	-
75	1,121	0,820	0,602	0,457	1,750	1,454	1,268	1,057	-	-	-	2,917	-	-	-	-
80	1,173	0,887	0,649	0,490	1,834	1,523	1,330	1,116	-	-	-	-	-	-	-	-
85	1,224	0,951	0,695	0,524	2,019	1,591	1,392	1,175	-	-	-	-	-	-	-	-
90	1,276	0,996	0,742	0,557	2,230	1,659	1,454	1,234	-	-	-	-	-	-	-	-
95	1,327	1,040	0,788	0,591	2,441	1,728	1,516	1,292	-	-	-	-	-	-	-	-
100	1,379	1,085	0,835	0,624	2,652	1,796	1,578	1,351	-	-	-	-	-	-	-	-
105	1,431	1,129	0,882	0,658	2,863	1,882	1,640	1,410	-	-	-	-	-	-	-	-
110	1,482	1,174	0,928	0,691	3,074	2,045	1,702	1,469	-	-	-	-	-	-	-	-
115	1,534	1,219	0,973	0,725	-	2,207	1,764	1,528	-	-	-	-	-	-	-	-
120	1,585	1,263	1,017	0,758	-	2,369	1,826	1,587	-	-	-	-	-	-	-	-
125	1,637	1,308	1,060	0,792	-	2,531	1,921	1,645	-	-	-	-	-	-	-	-
130	1,689	1,353	1,104	0,825	-	2,693	2,040	1,704	-	-	-	-	-	-	-	-
135	1,740	1,397	1,148	0,859	-	2,855	2,158	1,763	-	-	-	-	-	-	-	-
140	1,792	1,442	1,191	0,892	-	3,017	2,276	1,822	-	-	-	-	-	-	-	-
145	1,843	1,486	1,235	0,926	-	3,180	2,394	1,899	-	-	-	-	-	-	-	-
150	1,923	1,531	1,279	0,965	-	-	2,512	1,993	-	-	-	-	-	-	-	-
155	2,007	1,576	1,322	1,012	-	-	2,630	2,087	-	-	-	-	-	-	-	-
160	2,092	1,620	1,366	1,059	-	-	2,748	2,182	-	-	-	-	-	-	-	-
165	2,176	1,665	1,410	1,106	-	-	2,867	2,276	-	-	-	-	-	-	-	-
170	2,261	1,709	1,453	1,152	-	-	2,985	2,370	-	-	-	-	-	-	-	-
175	2,345	1,754	1,497	1,199	-	-	3,103	2,465	-	-	-	-	-	-	-	-
180	2,430	1,799	1,541	1,246	-	-	3,221	2,559	-	-	-	-	-	-	-	-
185	2,514	1,843	1,584	1,293	-	-	-	2,653	-	-	-	-	-	-	-	-
190	2,599	1,905	1,628	1,339	-	-	-	2,748	-	-	-	-	-	-	-	-
195	2,683	1,971	1,672	1,386	-	-	-	2,842	-	-	-	-	-	-	-	-
200	2,767	2,037	1,715	1,433	-	-	-	2,936	-	-	-	-	-	-	-	-
205	2,852	2,103	1,759	1,480	-	-	-	3,031	-	-	-	-	-	-	-	-
210	2,936	2,169	1,803	1,526	-	-	-	3,125	-	-	-	-	-	-	-	-
215	3,021	2,234	1,846	1,573	-	-	-	3,219	-	-	-	-	-	-	-	-
220	3,105	2,300	1,896	1,620	-	-	-	-	-	-	-	-	-	-	-	-
225	3,190	2,366	1,945	1,666	-	-	-	-	-	-	-	-	-	-	-	-
230	-	2,432	1,995	1,713	-	-	-	-	-	-	-	-	-	-	-	-
235	-	2,497	2,045	1,760	-	-	-	-	-	-	-	-	-	-	-	-
240	-	2,563	2,095	1,807	-	-	-	-	-	-	-	-	-	-	-	-
245	-	2,629	2,145	1,853	-	-	-	-	-	-	-	-	-	-	-	-
250	-	2,695	2,194	1,891	-	-	-	-	-	-	-	-	-	-	-	-
255	-	2,760	2,244	1,929	-	-	-	-	-	-	-	-	-	-	-	-
260	-	2,826	2,294	1,967	-	-	-	-	-	-	-	-	-	-	-	-
265	-	2,892	2,344	2,005	-	-	-	-	-	-	-	-	-	-	-	-
270	-	2,958	2,394	2,044	-	-	-	-	-	-	-	-	-	-	-	-
275	-	3,023	2,443	2,082	-	-	-	-	-	-	-	-	-	-	-	-
280	-	3,088	2,493	2,120	-	-	-	-	-	-	-	-	-	-	-	-
285	-	3,153	2,543	2,158	-	-	-	-	-	-	-	-	-	-	-	-
290	-	3,218	2,593	2,196	-	-	-	-	-	-	-	-	-	-	-	-
295	-	3,283	2,643	2,234	-	-	-	-	-	-	-	-	-	-	-	-
300	-	-	2,692	2,272	-	-	-	-	-	-	-	-	-	-	-	-
305	-	-	2,742	2,310	-	-	-	-	-	-	-	-	-	-	-	-
310	-	-	0,792	2,349	-	-	-	-	-	-	-	-	-	-	-	-
315	-	-	2,842	2,387	-	-	-	-	-	-	-	-	-	-	-	-
320	-	-	2,892	2,425	-	-	-	-	-	-	-	-	-	-	-	-
325	-	-	2,941	2,463	-	-	-	-	-	-	-	-	-	-	-	-
330	-	-	2,991	2,501	-	-	-	-	-	-	-	-	-	-	-	-



# B15.en Knauf Firepaint Steel

Steel columns, 4-sided open H- or I-sections - protection thickness required



Thickness (mm) required for the RF period - only intumescent coating

T U/A	R 90				R 120				R 180				R 240			
	500°C	550°C	600°C	650°C	500°C	550°C	600°C	650°C	500°C	550°C	600°C	650°C	500°C	550°C	600°C	650°C
71	0,942	0,696	0,553	0,493	2,911	2,604	1,315	1,016	-	-	3,701	3,447	-	-	-	-
75	1,016	0,750	0,595	0,531	2,980	2,663	1,809	1,097	-	-	3,817	3,553	-	-	-	-
80	1,110	0,817	0,648	0,578	3,067	2,737	2,427	1,351	-	-	3,969	3,685	-	-	-	-
85	1,510	0,884	0,701	0,626	3,154	2,811	2,521	1,680	-	-	4,123	3,817	-	-	-	-
90	1,997	0,952	0,754	0,673	3,241	2,885	2,587	2,009	-	-	4,277	3,995	-	-	-	-
95	2,461	1,019	0,807	0,721	3,328	2,959	2,652	2,338	-	-	4,432	4,205	-	-	-	-
100	2,517	1,086	0,860	0,768	3,415	3,032	2,718	2,499	-	-	4,586	4,414	-	-	-	-
105	2,572	1,227	0,912	0,816	3,502	3,106	2,784	2,562	-	-	4,741	4,624	-	-	-	-
110	2,627	1,502	0,965	0,863	3,589	3,180	2,850	2,626	-	-	4,895	4,833	-	-	-	-
115	2,683	1,778	1,018	0,911	3,676	3,254	2,915	2,689	-	-	5,050	5,043	-	-	-	-
120	2,738	2,053	1,071	0,958	3,763	3,327	2,981	2,753	-	-	-	-	-	-	-	-
125	2,793	2,328	1,124	1,006	3,850	3,401	3,047	2,816	-	-	-	-	-	-	-	-
130	2,848	2,487	1,277	1,053	4,020	3,475	3,112	2,880	-	-	-	-	-	-	-	-
135	2,904	2,542	1,443	1,100	4,214	3,549	3,178	2,943	-	-	-	-	-	-	-	-
140	2,959	2,596	1,610	1,174	4,408	3,623	3,244	3,007	-	-	-	-	-	-	-	-
145	3,014	2,651	1,776	1,289	4,602	3,696	3,309	3,070	-	-	-	-	-	-	-	-
150	3,070	2,705	1,942	1,405	4,796	3,770	3,375	3,133	-	-	-	-	-	-	-	-
155	3,125	2,759	2,108	1,520	4,990	3,844	3,441	3,197	-	-	-	-	-	-	-	-
160	3,180	2,814	2,275	1,635	-	4,059	3,507	3,260	-	-	-	-	-	-	-	-
165	3,236	2,868	2,441	1,751	-	4,350	3,572	3,324	-	-	-	-	-	-	-	-
170	3,291	2,923	2,511	1,866	-	4,642	3,638	3,387	-	-	-	-	-	-	-	-
175	3,346	2,977	2,570	1,982	-	4,934	3,704	3,451	-	-	-	-	-	-	-	-
180	3,401	3,031	2,629	2,097	-	-	3,769	3,514	-	-	-	-	-	-	-	-
185	3,457	3,086	2,688	2,212	-	-	3,835	3,578	-	-	-	-	-	-	-	-
190	3,512	3,140	2,747	2,382	-	-	4,162	3,641	-	-	-	-	-	-	-	-
195	3,567	3,195	2,806	2,443	-	-	4,779	3,705	-	-	-	-	-	-	-	-
200	3,623	3,249	2,865	2,516	-	-	-	3,768	-	-	-	-	-	-	-	-
205	3,678	3,303	2,924	2,582	-	-	-	3,831	-	-	-	-	-	-	-	-
210	3,733	3,358	2,982	2,648	-	-	-	-	-	-	-	-	-	-	-	-
215	3,789	3,412	3,041	2,714	-	-	-	-	-	-	-	-	-	-	-	-
220	3,844	3,467	3,100	2,780	-	-	-	-	-	-	-	-	-	-	-	-
225	4,032	3,521	3,159	2,846	-	-	-	-	-	-	-	-	-	-	-	-
230	4,339	3,576	3,218	2,912	-	-	-	-	-	-	-	-	-	-	-	-
235	4,645	3,630	3,277	2,978	-	-	-	-	-	-	-	-	-	-	-	-
240	4,951	3,684	3,336	3,044	-	-	-	-	-	-	-	-	-	-	-	-
245	-	3,739	3,395	3,110	-	-	-	-	-	-	-	-	-	-	-	-
250	-	3,793	3,454	3,176	-	-	-	-	-	-	-	-	-	-	-	-
255	-	3,848	3,513	3,242	-	-	-	-	-	-	-	-	-	-	-	-
260	-	4,030	3,571	3,308	-	-	-	-	-	-	-	-	-	-	-	-
265	-	4,300	3,630	3,374	-	-	-	-	-	-	-	-	-	-	-	-
270	-	4,571	3,689	3,440	-	-	-	-	-	-	-	-	-	-	-	-
275	-	4,841	3,748	3,506	-	-	-	-	-	-	-	-	-	-	-	-
280	-	5,111	3,807	3,572	-	-	-	-	-	-	-	-	-	-	-	-
285	-	-	3,866	3,638	-	-	-	-	-	-	-	-	-	-	-	-
290	-	-	4,045	3,704	-	-	-	-	-	-	-	-	-	-	-	-
295	-	-	4,232	3,770	-	-	-	-	-	-	-	-	-	-	-	-
300	-	-	4,419	3,836	-	-	-	-	-	-	-	-	-	-	-	-
305	-	-	4,606	4,044	-	-	-	-	-	-	-	-	-	-	-	-
310	-	-	4,793	4,405	-	-	-	-	-	-	-	-	-	-	-	-
315	-	-	4,981	4,766	-	-	-	-	-	-	-	-	-	-	-	-
320	-	-	5,168	5,127	-	-	-	-	-	-	-	-	-	-	-	-
325	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
330	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
335	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
340	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
344	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



# B15.en Knauf Firepaint Steel

Steel columns, 4-sided circular hollow sections - protection thickness required



Thickness (mm) required for the RF period - only intumescent coating																
T U/A	R 90				R 120				R 180				R 240			
	500°C	550°C	600°C	650°C	500°C	550°C	600°C	650°C	500°C	550°C	600°C	650°C	500°C	550°C	600°C	650°C
45	1,996	1,754	1,553	1,323	3,087	2,799	2,562	2,282	-	-	4,579	4,199	-	-	-	-
50	2,290	2,036	1,825	1,581	3,478	3,174	2,924	2,626	-	-	5,121	4,715	-	-	-	-
55	2,572	2,306	2,086	1,830	3,853	3,534	3,272	2,957	-	-	-	5,212	-	-	-	-
60	2,843	2,567	2,338	2,069	4,214	3,881	3,607	3,276	-	-	-	-	-	-	-	-
65	3,104	2,817	2,580	2,299	4,561	4,214	3,930	3,583	-	-	-	-	-	-	-	-
70	3,356	3,059	2,814	2,522	4,895	4,536	4,241	3,880	-	-	-	-	-	-	-	-
75	3,598	3,292	3,039	2,736	5,217	4,846	4,541	4,166	-	-	-	-	-	-	-	-
80	3,831	3,516	3,256	2,943	-	5,145	4,831	4,442	-	-	-	-	-	-	-	-
85	4,057	3,733	3,466	3,144	-	-	5,111	4,709	-	-	-	-	-	-	-	-
90	4,274	3,942	3,669	3,337	-	-	-	4,967	-	-	-	-	-	-	-	-
95	4,484	4,145	3,865	3,524	-	-	-	5,216	-	-	-	-	-	-	-	-
100	4,687	4,341	4,055	3,705	-	-	-	-	-	-	-	-	-	-	-	-
105	4,883	4,530	4,239	3,881	-	-	-	-	-	-	-	-	-	-	-	-
110	5,074	4,713	4,417	4,051	-	-	-	-	-	-	-	-	-	-	-	-
115	-	4,891	4,589	4,215	-	-	-	-	-	-	-	-	-	-	-	-
120	-	5,063	4,757	4,375	-	-	-	-	-	-	-	-	-	-	-	-
125	-	5,230	4,919	4,530	-	-	-	-	-	-	-	-	-	-	-	-
130	-	-	5,076	4,680	-	-	-	-	-	-	-	-	-	-	-	-
135	-	-	5,229	4,826	-	-	-	-	-	-	-	-	-	-	-	-
140	-	-	-	4,968	-	-	-	-	-	-	-	-	-	-	-	-
145	-	-	-	5,106	-	-	-	-	-	-	-	-	-	-	-	-
150	-	-	-	5,240	-	-	-	-	-	-	-	-	-	-	-	-
155	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
160	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
165	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
170	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
175	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
180	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
185	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
190	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
195	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
205	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
210	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
215	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
220	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
225	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
235	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
245	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
255	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
260	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
265	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
270	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
275	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
280	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
285	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
290	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
295	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
305	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
315	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
320	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
330	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
335	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
340	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
345	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
350	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
355	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-





# B15.en Knauf Firepaint Steel

Steel columns, 4-sided rectangular hollow sections - protection thickness required



Thickness (mm) required for the RF period - only intumescent coating

T U/A	R 90				R 120				R 180				R 240			
	500°C	550°C	600°C	650°C	500°C	550°C	600°C	650°C	500°C	550°C	600°C	650°C	500°C	550°C	600°C	650°C
50	1,207	0,965	0,733	0,517	2,097	1,801	1,514	1,246	3,879	3,474	3,077	2,704	-	5,146	4,641	4,162
55	1,445	1,187	0,939	0,708	2,412	2,096	1,789	1,501	4,346	3,914	3,489	3,088	-	-	5,189	4,675
60	1,677	1,404	1,141	0,894	2,719	2,384	2,058	1,751	4,802	4,343	3,891	3,464	-	-	-	5,177
65	1,903	1,616	1,338	1,077	3,017	2,665	2,320	1,995	5,246	4,763	4,285	3,832	-	-	-	-
70	2,124	1,823	1,531	1,256	3,309	2,939	2,577	2,235	-	5,172	4,670	4,192	-	-	-	-
75	2,339	2,025	1,719	1,432	3,593	3,208	2,829	2,469	-	-	5,047	4,545	-	-	-	-
80	2,549	2,223	1,904	1,603	3,871	3,470	3,075	2,699	-	-	-	4,891	-	-	-	-
85	2,754	2,416	2,085	1,772	4,141	3,726	3,315	2,924	-	-	-	5,230	-	-	-	-
90	2,954	2,605	2,262	1,937	4,406	3,977	3,551	3,145	-	-	-	-	-	-	-	-
95	3,149	2,790	2,435	2,099	4,664	4,222	3,782	3,362	-	-	-	-	-	-	-	-
100	3,340	2,970	2,605	2,257	4,916	4,462	4,008	3,574	-	-	-	-	-	-	-	-
105	3,527	3,147	2,771	2,413	5,163	4,697	4,230	3,782	-	-	-	-	-	-	-	-
110	3,709	3,321	2,934	2,566	-	4,926	4,447	3,986	-	-	-	-	-	-	-	-
115	3,888	3,490	3,094	2,716	-	5,151	4,660	4,187	-	-	-	-	-	-	-	-
120	4,062	3,656	3,251	2,862	-	-	4,868	4,383	-	-	-	-	-	-	-	-
125	4,233	3,819	3,404	3,007	-	-	5,073	4,576	-	-	-	-	-	-	-	-
130	4,400	3,978	3,555	3,148	-	-	5,273	4,765	-	-	-	-	-	-	-	-
135	4,563	4,134	3,703	3,287	-	-	-	4,951	-	-	-	-	-	-	-	-
140	4,723	4,287	3,848	3,424	-	-	-	5,134	-	-	-	-	-	-	-	-
145	4,879	4,437	3,990	3,558	-	-	-	5,313	-	-	-	-	-	-	-	-
150	5,033	4,584	4,130	3,690	-	-	-	-	-	-	-	-	-	-	-	-
155	5,183	4,728	4,267	3,819	-	-	-	-	-	-	-	-	-	-	-	-
160	5,330	4,870	4,401	3,946	-	-	-	-	-	-	-	-	-	-	-	-
165	-	5,008	4,533	4,071	-	-	-	-	-	-	-	-	-	-	-	-
170	-	5,144	4,663	4,194	-	-	-	-	-	-	-	-	-	-	-	-
175	-	5,278	4,790	4,315	-	-	-	-	-	-	-	-	-	-	-	-
180	-	-	7,916	4,433	-	-	-	-	-	-	-	-	-	-	-	-
185	-	-	5,039	4,550	-	-	-	-	-	-	-	-	-	-	-	-
190	-	-	5,159	4,665	-	-	-	-	-	-	-	-	-	-	-	-
195	-	-	5,278	4,778	-	-	-	-	-	-	-	-	-	-	-	-
200	-	-	-	4,889	-	-	-	-	-	-	-	-	-	-	-	-
205	-	-	-	4,998	-	-	-	-	-	-	-	-	-	-	-	-
210	-	-	-	5,106	-	-	-	-	-	-	-	-	-	-	-	-
215	-	-	-	5,211	-	-	-	-	-	-	-	-	-	-	-	-
220	-	-	-	5,316	-	-	-	-	-	-	-	-	-	-	-	-
225	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
235	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
245	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
255	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
260	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
265	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
270	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
275	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
280	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
285	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
290	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
295	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
305	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
315	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
320	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
330	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
335	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
340	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
345	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
350	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
355	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
360	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

### Preparation

#### Substrates and surface preparation

##### Carbon steel

Cleaning and degreasing. Entire area to be (high pressure) fresh water cleaned in order to remove salts and other contaminants. When the surface is dry, perform abrasive blasting to minimum Sa 2½ according to ISO 8501-1. In case oxidation has occurred between blasting and application of the primer, then the surface should be re-blasted and primed.

Under restrictions St3 steel can be accepted. Degrease and high pressure water wash the substrate, prior to the St3 cleaning. Special care shall be taken to avoid polishing of the surface. Power tools such as chipping hammers, needle guns and power rotary wire brushes will provide acceptable roughness for proper adhesion of the primer. It is not acceptable that any mill scale is present on the cleaned surface. For steel prepared to St3, use primer Knauf Firepaint primer K1. Afterwards apply Knauf Firepaint Steel and the

possible topcoat as per the normal instructions. The St3 preparation is generally only recommended for repair of small areas.

##### Galvanised steel

Cleaning and degreasing. Entire area to be (high pressure) fresh water cleaned in order to remove salts and other contaminants. When surface is dry, perform either light abrasive sweep blasting to a uniform rough surface or roughen the surface by mechanical means. Afterwards, apply one coat of primer Knauf Firepaint Primer K2 at maximum DFT of 100 micron.

After priming and before application of Knauf Firepaint Steel, remove oil and grease etc. with suitable detergent. Salt and other contaminants shall be removed by (high pressure) fresh water cleaning. Leave the surface drying for sufficient time to ensure full evaporation of water, prior to application of Knauf Firepaint Steel.

Knauf must be consulted in all cases of doubt about the suitability for overcoating of the primer. Cases where Knauf should be consulted include (but not limited to): surface contamination, damages and defects, unknown primer pre-applied, non-approved primer and exceeded dry film thickness of primer.

#### Primers

Only Knauf-approved primers can be used in combination with Knauf Firepaint Steel.

Knauf Firepaint Steel must under no circumstances be applied directly to the steel surface.

Knauf Firepaint Steel shall be applied within the minimum and maximum overcoating intervals of the primer specified. Please consult the datasheet of the relevant primer.

The maximum dry film thickness of the primer recommended by Knauf shall not be exceeded as this could influence the performance during a fire.

### Application

#### Application conditions

Knauf Firepaint Steel can be applied on steel temperatures between +5°C and + 50°C.

The surface temperature must always be 3°C above dew point and the maximum relative humidity should not exceed 85% during the application.

The area where Knauf Firepaint Steel is applied must be well ventilated and proper air circulation shall be secured for optimal drying.

For applications under warm conditions special attention shall be given to avoid solvent entrapment due to application of high dry film thicknesses per coat. For optimum drying in these conditions it is generally recommended to apply several thinner coats to obtain the specified dry film thickness (e.g. apply 2 coats of 750µm each instead of 1500µm in a single coat). For applications outdoors at warm conditions, direct sunlight exposure can be avoided to prevent skinning of the paint that will result in longer overall drying times due to solvent entrapment; if direct sunlight cannot be avoided a lower DFT per coat may be beneficial for the drying time of the complete coating system.

It is recommended that the products in all situations are protected from condensation and water during application and drying.

Knauf Firepaint Steel are relatively high viscosity materials and normally they are supplied showing a false body effect. Prior to application the material has to be stirred shortly in order to homogenise the material and break the false body effect to ensure good flow during the application. Excessive stirring should be avoided as this may cause increased solvent evaporation.

#### Application equipment

Recommended airless spray equipment: (Airless spray data are indicative and subject to adjustment)

Pump ratio: min. 45:1

Nozzle size: .017" - .023"

Nozzle pressure: 200 bar/2800 psi

Fan angle: 30-50°

After finishing the application, clean the equipment immediately with Knauf Firepaint Finish Thinner AL. It is recommended to remove the gun filter. Note: Increasing spray hose diameter may ease paint flow, thereby improving the spray fan. If longer hoses are necessary, it may be necessary to raise the pump ratio to 60:1 maintaining the high output capacity of the pump.

#### Thinning

Thinning of Knauf Firepaint Steel is normally not required. Only for areas where low DFTs (<225µm DFT, 300µm WFT) is to be applied 5% (vol) thinner can be used. Use Knauf Firepaint finish thinner AL.

When thinned down, the sag resistance of the coating is reduced so 1500µm DFT for Knauf Firepaint Steel cannot be achieved anymore.

#### Application

##### Spray application

During application it is recommended to put the steel sections on support trestles such that the area of contact is minimum. Best practice is

“sharp” contact. This minimises the area of damages and therefore limits the to-be-repaired surfaces after the applications. With Knauf Firepaint products applied in one/few coat(s) at low dry film thicknesses, it is of special importance that a continuous, pinhole-free paint film is obtained at application of each coat. An application technique which will ensure good film formation on all faces of the profiles must be adopted. It is very important to use nozzles of the correct, not too big, size and to have a proper, uniform distance of the spray gun to the surface; 30-50 cm should be aimed at. Furthermore, great care must be taken to cover edges, openings, rear sides of stiffeners etc. Thus, on these areas application of a stripe coat will therefore be good painting practice.

The finished coating must appear as a homogeneous film with a smooth surface; irregularities such as dust, dry spray, abrasives, should be remedied.

##### Brush and roller application

Application with hand tools, brush or roller is possible but it results in a more uneven paint film by these methods compared to airless spray paints and many additional coats may be necessary to obtain the specified dry film thickness.

Application by hand tools, brush, or roller is generally only recommended for small areas, repairs and touch-up; although, repairs can often be made easily by putty knife or plastering trowel.

### Thickness

#### Wet/dry film thickness

It is important that the specified dry film thickness is achieved as a minimum in order to make sure that the coating system is performing as specified.

The required dry film thickness of Knauf Firepaint products vary depending on the section size of the steel profile and the configuration that the steel profile is used in. It is the responsibility of the applicator to ensure that the specified dry film thickness is applied on all areas. The applicator should therefore be in possession of a full list of steel sections and dry film thicknesses according to the configuration, including information about the number of sides to be coated.

It is recommended that all steel sections are marked according to the list of steel sections and dry film thicknesses specified to secure that application is done according to the specification.

It is recommended that the wet film thickness is measured frequently during the application using a wet film gauge to ensure that the specified thickness is achieved. This will allow the applicator to adjust the thickness if necessary. Avoid the gauge from sinking into the underlying coat to prevent incorrect wet film thickness measurements.

Measurements of the dry film thickness should be conducted on the fully dry Knauf Firepaint coats. It is important that dry film measurements are done on fully dried paint as measurements on not fully dried paint may give incorrect results. Normally electronic dry film thickness-gauges are used for this. The applicator must confirm that the specified dry film thickness has been achieved according to the specification. If insufficient dry film thickness is measured then an additional coat or touch-up should be applied.

When indicative measurements have to be made prior to complete drying of the coating, indicative dry film thickness measurements may be done with an electronic DFT-gauge in combination with a shim. The shim must be held in between the coating and the gauge in order to minimise the sinking in of the gauge into the soft coating. Drying checks made on areas that are in direct sunlight exposure may not represent the state of drying for the rest of the project. An intumescent coating is a thermoplastic product and (once dry) exposure to heat will soften the product. Softening will happen above approximately 40°C. Select areas at cooler conditions for making drying checks or check the state during the morning, when the steel sections will be the coolest. It is important that no topcoat is applied before dry film thickness of Knauf Firepaint Steel has been measured and confirmed to be correct. If a topcoat has been applied on an area with insufficient Knauf Firepaint dry film thickness then the topcoat must be removed before repair/touch-up

can be conducted.

The paint layer must be applied homogeneous-ly and as close to the specification as possible. Avoid excessive film thickness due to the risk of sagging, cracks and solvent retention and extended drying/overcoating times.

The maximum dry film thickness that can be applied with Knauf Firepaint Steel in a single coat is 1500µm.

A differentiation shall be made between on-site applications (after erection of the steel structure) and off-site (in shop) applications. For on-site applications it is beneficial to spray in high DFTs in order to achieve the coating thickness required for the demanded fire protection in minimum number of coats. In this case the steel elements do not have to be handled after the coating application; hence the speed of drying to hard dry is generally of low importance, as long as the dry to touch time is short. Therefore it is beneficial that Knauf Firepaint can be applied at the maximum DFTs per coat.

For applications off-site (in shop) and on-site pre-erection, it is generally important that the drying of the applied coating is fast for quick throughput of the steel. When the required total thickness exceeds 3000 µm DFT, evaporation of solvents will take longer time and therefore it is necessary to apply multiple coats of 750 µm DFT per coat (1000 µm WFT) with an overcoating interval of minimum 24 hours for optimal drying. It is good practice to determine the state of drying of the coating by pressing firm with thumb. When it is not easy to make a mark in the coating, it is ready to accept a next coat. (It is technically possible to apply the next coat sooner, but it will affect the drying of the entire coating system). If this advice is ignored, it will take drastically more time to dry the complete coating system.

#### Film thickness acceptance

It is required that as a minimum the specified dry film thickness of Knauf Firepaint Steel is achieved. Excessive thicknesses shall be prevented as well as it will increase drying times and increase paint consumption.

#### Weathering exposure

Knauf Firepaint Steel can be exposed to mild exterior conditions up to 6 month before being top coated. For longer or permanent exterior exposure (C3 or C4 exposure according to ISO12944) the Knauf products shall be topcoated with a suitable topcoat. Pooling/standing water affects the coating system, hence pooling water must be prevented at all times.

For C1 and C2 conditions (ISO12944) Knauf Firepaint Steel can be used without topcoat, but for aesthetic reasons a topcoat is possible.

#### Topcoats

Depending on the end use of the coating system, a topcoat may be required. A selection of approved topcoats are compatible with Knauf Firepaint Steel. Only Knauf-approved topcoats can be used in combination with Knauf Firepaint Steel. It must be ensured by the applicator that the total specified dry film thickness of Knauf Firepaint Steel is achieved prior to the start of the topcoat application. Dry film thickness measurements must be done on a fully dry Knauf Firepaint coating in order to measure an accurate result.

Before application of a topcoat (or additional coat of Knauf Firepaint Steel) the applicator must ensure that the coating surface of the Knauf Firepaint product is clean of salts, oil, grease or other contaminants.

Topcoats may prolong the drying of Knauf Firepaint Steel. Special attention should be given to areas where the total specified dry film thickness of the Knauf Firepaint Steel product exceeds 2 mm. It is good practice to measure the state of drying of the intumescent coating prior to the application of the next coat. Press firm with a thumb on the coating. It should not be easy to make an indent in the coating. Once this state is achieved the coating is ready to accept its topcoat. Acrylic topcoats could be applied faster, but for fastest drying of the entire system it is still recommendable to use the before mentioned "thumb-test". It is not necessary to achieve the so called "nail hard" stage.

### Handling, Repair & Maintenance

#### Handling

In off-site applications, the steel sections will need to be handled after drying of the coating system. It is important to note that due to the thermoplastic nature of acrylic intumescent coatings, they are sensitive to damage, also after full drying. Generally it is more of a matter to minimise the damage than to prevent damage. Therefore special care should be taken to smartly handle the coated steel sections. If the steel sections have areas that are not sprayed with intumescent paint (e.g. areas left blank as welding/bolting area), the lifting straps should be installed in those places when possible. This reduces the amount of damage, and therefore also the repair work required. The amount of supporting beams, normally of wood, shall be limited to the minimum required, in order to minimise the damaged areas. Areas where the sections lean on the supporting beams are likely to be damaged. Maintain sufficient ventilation, also when the product is considered dry. Therefore, do not cover up the sections as this will affect the final drying properties.

#### Repair & Maintenance

Knauf Firepaint Steel can be used as repair and touch-up coating for damaged areas of freshly applied Knauf Firepaint Steel. Prior to repair, make sure that the surface is clean and free of contamination. Loose parts are to be removed completely.

When film damages are deep and bare steel is visible, then clean the area to St 3 (spot-repairs) or by abrasive blasting to minimum Sa 2½ or high pressure water jetting to Wa 2½ prior to application of the new coating system. Application of the damaged areas can be done by airless spray, brush cladding or roller. Conditions during these applications shall fulfil the requirements as during normal application conditions.

When damages occur when the intumescent paint is still soft, it may be possible to remove the intumescent paint using a clean putty knife. It is recommended to remove the complete soft intumescent layer and after the drying of the (undamaged part of the) coating the spot repair can be made by brush, roller or airless spray.

For repairs of older systems, the full coating sys-

tem shall be removed and the damaged areas shall be cleaned thoroughly by power tool cleaning to St 3 (spot-repairs) or by abrasive blasting to minimum Sa 2½ prior to application of the new coating system.

Feather edges to sound and intact areas. Brush off loose material. Touch up to full film thickness.

Maintenance of Knauf Firepaint coating systems must be done with Knauf approved topcoats or with the same Knauf Firepaint products if no topcoat has been used before. Knauf Firepaint products cannot be directly applied over an already topcoated coating system.

Areas of damaged topcoats must be repaired immediately, as the underlying intumescent in these areas may be exposed to unacceptable weathering.

Maintenance of a Knauf Firepaint coating system without consulting Knauf for approval may influence the performance of the Knauf Firepaint product. All maintenance of any Knauf Firepaint coating system must therefore be done in consultation with Knauf.